



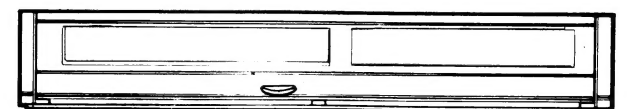
GoldStar

VHS VIDEO CASSETTE RECORDER
PAL

SERVICE MANUAL

CATION

BEFORE SERVICING THE CHASSIS, READ THE "SAFETY PRECAUTIONS", IN THIS MANUAL



MODEL: R-C400W



GoldStar

INTRODUCTION

This service manual provides a variety of service information. It contains the mechanical structure of the Video Cassette Recorder(VCR) together with mechanical adjustments and the electronic circuits in schematic form. This VCR was manufactured and assembled under our strict quality control standards and meets or exceeds industry specifications and standards.

TOTAL CONTENTS

SECTION 1SUMMARY
SECTION 2CABINET & MAIN FRAME
SECTION 3ELECTRICAL
SECTION 4MECHANISM
SECTION 5REPLACEMENT PARTS LIST

SECTION 1
SUMMARY

CONTENTS

IMPORTANT SAFETY PRECAUTIONS 1-3
• Precautions during Servicing
SAFETY CHECK AFTER SERVICING..... 1-4
• Insulation resistance test
• Dielectric strength test
• Clearance distance
• Leakage current test
FEATURES..... 1-5
SPECIFICATIONS 1-5
LOCATION OF CUSTOMER CONTROLS 1-6

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, the products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

• Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the Δ symbol and shaded (■) parts are critical for safety. Replace only with specified part numbers.

Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Use Specified internal wiring. Note especially:

- 1) Wires covered with PVC tubing
- 2) Double insulated wires
- 3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially:

- 1) Insulation Tape
- 2) PVC tubing
- 3) Spacers
- 4) Insulation sheets for transistor

5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.(Fig. 1)

6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10-15Kg of force in any direction will not loosen it.(Fig. 2)

9. Also check areas surrounding repaired locations.

10. Products using cathode ray tubes (CRTs)

In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the parts specified. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

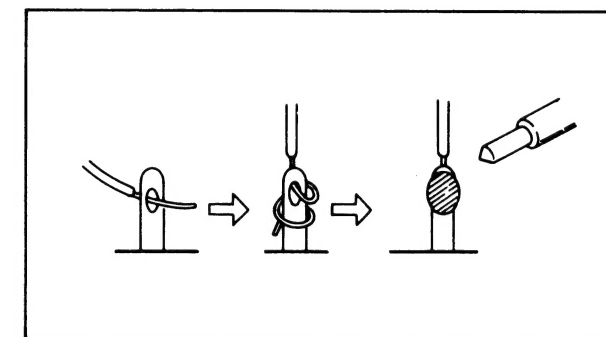


Fig. 1

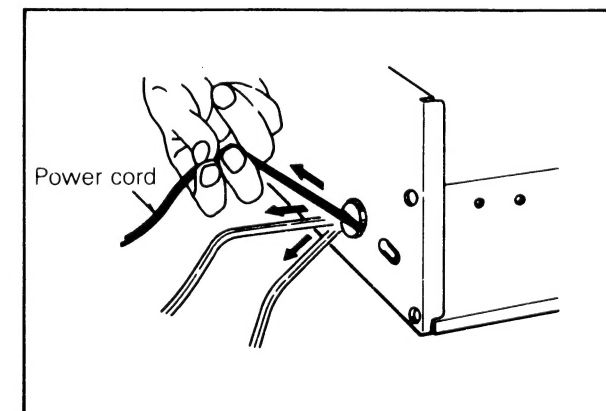


Fig. 2

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

• Insulation resistance test

Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

• Dielectric strength test

Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set(RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

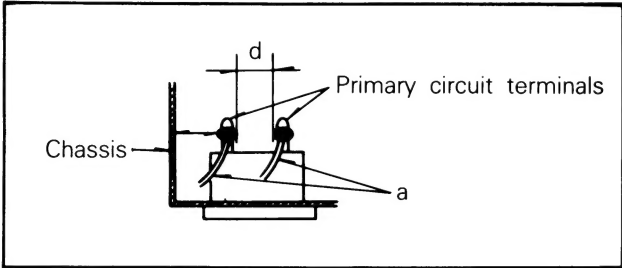


Fig. 3

• Clearance distance

When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

Table 1:Ratings for selected areas

AC Line Voltage	Region	Insulation Reslstance	Dielectric Strength	Clearance Distance(d),(d)
*110 to 130 V 200 to 240 V	Europe Australia	≥10 MΩ/500 V DC	4kV 1 minute	≥6mm(d) ≥8mm(d) (a Power cord)

*Class II model only.

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

• Leakage Current test

Confirm specified or lower leakage current between B(earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.)

Measuring Method: (Power ON)
Insert load Z between B(earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure and following table.

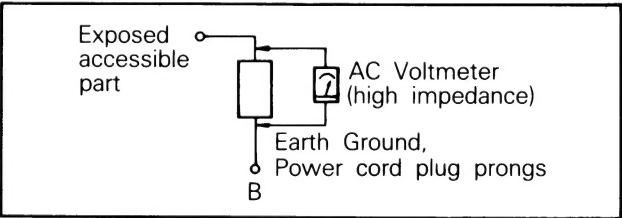


Fig. 4

Table 2:Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current(i)	Earth Ground (B) to:
100 to 130 V	Europe	2kΩ	i≤0.7m A peak i≤2m A dc	Antenna earth terminals
200 to 240 V	Australia	50kΩ	i≤0.7m A peak i≤2m A dc	Other terminals

Note. This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

FEATURES

- VHS Index Search System(VISS)
 - HQ, High Quality picture enhancement system improves image sharpness and detail
 - Double-Azimuth 4 head system
 - 8 event/1 year programmable timer with every recording
 - QSR, Quick Set Recording with stand-by (up to 9 hours)
 - Programmable channel memory with voltage frequency synthesized tuner(up to 40 positions)
 - Full-Function infrared remote control (OSD programming+LCD programming)
- Auto Power and Play Function
 - Automatic rewind
 - Freeze function(pause), Frame advance
 - Distinguished Editing functions
 - Tape Remaining time display function
 - Quick Start Function
 - Real Time Counter
 - Digital Auto Tracking System
 - Jet Search
 - FR Search Function
 - PAL B/G, SECAM D/K Dual System
 - Auto Head Cleaner

SPECIFICATIONS

- General :**

Power Source : AC 220V±10%, 50Hz

Power Consumption : Approx. 33Watts

Video Recording System : Double azimuth 2 heads, helical scanning system

Tape Speed : 23.39mm/sec(SP mode)
11.69mm/sec(LP mode)

Tape Format : Tape Width 1/2" (12.7mm high density tape VHS)

Maximum Recording Time : 4.2 hours at SP/8.4 hours at LP mode((with E-260 tape)

FF/Rewind Time : Less than 300secs(with E-180 cassette)

Dimensions(WXHXD) : 16.9" X 3.2" X 13.4" mm(430 X 82 X 340mm)

Weight : About 15.45lbs(7.0Kg)

Operating Temperature : 41°F-95°F(5°C-35°C)

Operating Humidity : 35%-80%

Timer : 24 hours display type
- Video :**

Television System : CCIR standard(625lines, 50 fields)

Recording Format : PAL/SECAM Colour signal

RF Reception : PAL/MESECAM(0st)

RF OUT : PAL, SECAM(B/G, D/K)

Input Level : PAL, SECAM(G, K)

Output Level : VIDEO IN(SCART-PIN type)
1.0Vp-p 75 ohm unbalanced
VIDEO OUT(SCART-PIN type)
1.0Vp-p 75 ohm unbalanced

Signal to Noise Ratio : More than 43dB

RF Modulator : UHF Channels 32~40(Adjustable)
- Audio :**

Input Level : AUDIO IN(SCART-PIN type)
-8dBm more than 50Kohm

Output Level : AUDIO OUT(SCART-PIN type)
-3dBm Less than 1Kohm

Audio Track : Monotrack type

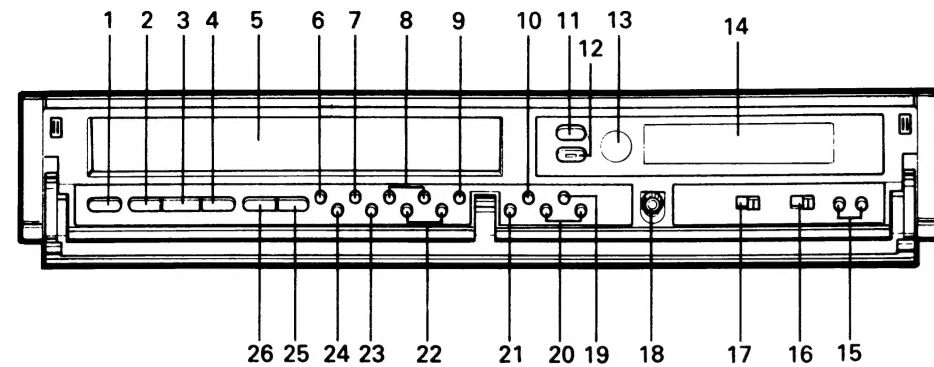
Audio Frequency Response : 100Hz-10KHz(+3/-3)

Signal to Noise Ratio : More than 40dB

* Designs and specifications are subject to change without notice.

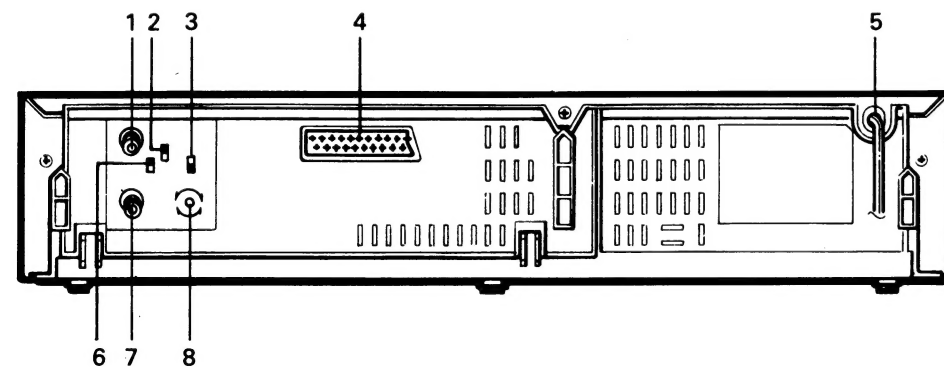
LOCATION OF CUSTOMER CONTROLS

FRONT



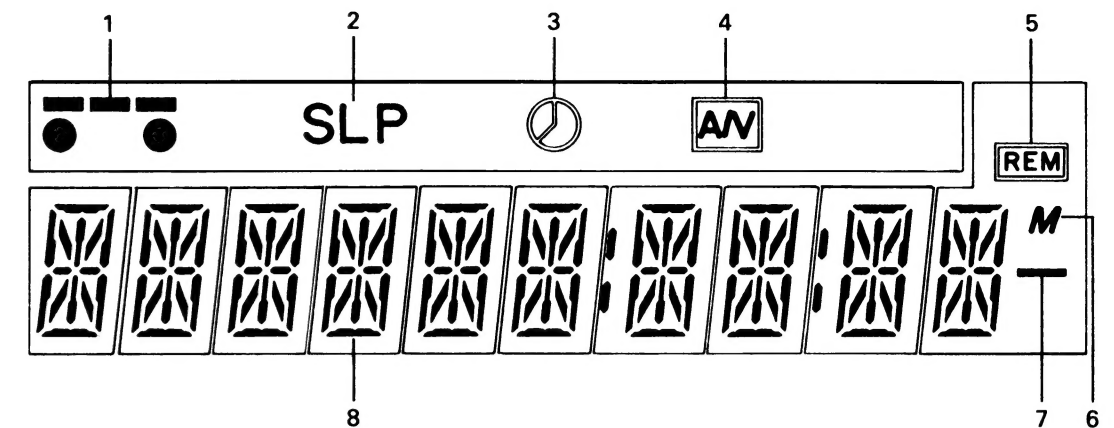
- | | |
|----------------------------------|--|
| 1. STOP BUTTON | 14. MULTI-FUNCTION DISPLAY |
| 2. REWIND/REVIEW VUTTONS | 15. CHANNEL PROGRAMME SELECTORS(- / +) |
| 3. PLAY(X2) BUTTON | 16. TAPE SELECT SWITCH |
| 4. FAST FORWARD/CUE BUTTON | 17. EDIT ON/ON SWITCH |
| 5. CASSETTE COMPARTMENT | 18. SHARPNESS CONTROL |
| 6. NOR/PRE BUTTON | 19. TAPE COUNTER RESET BUTTON |
| 7. AUTO SEARCH BUTTON | 20. MANUAL TRACKING CONTROL |
| 8. MFT(- / +) BUTTONS | 21. TAPE SPEED MODE SELECT BUTTON(SP/LP) |
| 9. TU/AV SELECT BUTTON | 22. CHECK(- / +) |
| 10. CLOCK/TAPE COUNTER/TAPE | 23. SKIP BUTTON |
| REMAING TIME SELECT BUTTON | 24. MEMO BUTTON |
| 11. EJECT BUTTON | 25. PAUSE/STILL BUTTON |
| 12. OPERATE BUTTON AND INDICATOR | 26. RECORD BUTTON |
| 13. REMOTE SENSOR WINDOW | |

REAR



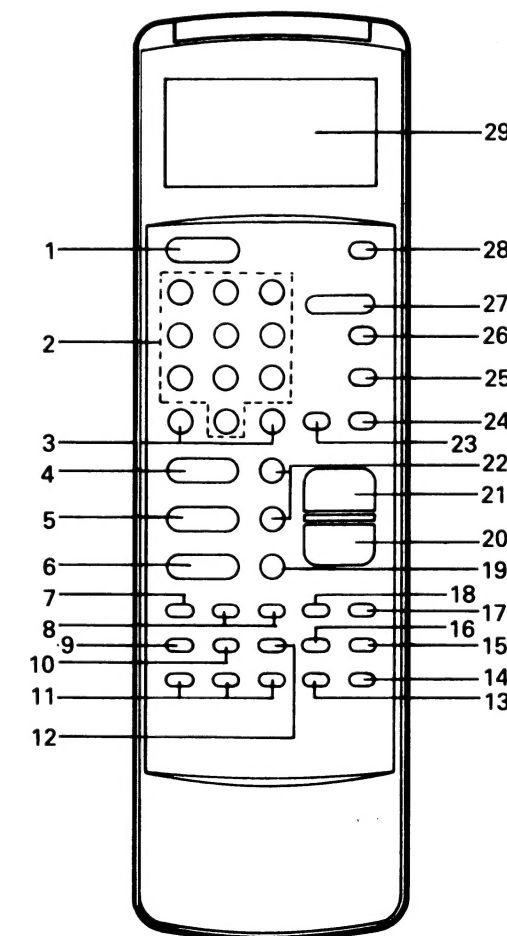
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|---------------------------|-----------------------------|
| 1. AERIAL INPUT | 5. MAINS LEAD |
| 2. SYSTEM SELECTOR SWITCH | 6. ATTENUATION(ATT.) SWITCH |
| (PAL B/G, SECAM D/K) | 7. RF OUTPUT |
| 3. TPSG ON/OFF SWITCH | 8. RF CHANNEL CONTROL |
| 4. EURO-AV SOCKET | |

MULTI-FUNCTION DISPLAY



- | | |
|--------------------------------|-----------------------------|
| 1. CASSETTE-IN INDICATOR | 5. TAPE REMAINING INDICATOR |
| 2. TAPE SPEED INDICATOR(SP/LP) | 6. MEMORY INDICATOR |
| 3. TIMER INDICATOR | 7. MINUS INDICATOR |
| 4. LINE INDICATOR | 8. FUNCTION INDICATORS |

REMOTE CONTROL



- | | |
|--|---------------|
| 1. OPERATE BUTTON | 29. LCD PANEL |
| 2. NUMBER BUTTONS "0" THROUGH "9" | |
| 3. CHANNEL PROGRAMME BUTTONS | |
| 4. FAST FORWARD/CUE BUTTON | |
| 5. REWIND/REVIEW BUTTON | |
| 6. PAUSE/STILL BUTTON | |
| 7. AUTO TRACKING BUTTON | |
| 8. V.LOCK/TRACKING(- / +) BUTTONS | |
| 9. VISS BUTTON | |
| 10. MARK BUTTON | |
| 11. SLOW(- / +) BUTTONS | |
| 12. EARSE BUTTON | |
| 13. QSR START BUTTON | |
| 14. QSR LENGTH BUTTON | |
| 15. CLOCK/TAPE COUNTER MEMORY/TAPE | |
| REMAINING SELECT BUTTON | |
| 16. TAPE COUNTER RESET BUTTON | |
| 17. TAPE SPEED MODE SELECT BUTTON(SP/LP) | |
| 18. TU/AV SELECTOR | |
| 19. FRAME ADVANCE BUTTON | |
| 20. STOP BUTTON | |
| 21. PLAY(X2) BUTTON | |
| 22. RECORD BUTTON | |
| 23. MENU BUTTON | |
| 24. TRANS BUTTON | |
| 25. MONITOR/CLEAR BUTTON | |
| 26. DISPLAY/ENTER BUTTON | |
| 27. PROGRAMMING BUTTON | |
| 28. EJECT BUTTON | |

SECTION 2

CABINET & MAIN FRAME

CONTENTS

CABINET DISASSEMBLY	2-3
1. Top Case, Bottom Cover	2-3
2. Front Panel.....	2-3
CIRCUIT BOARD DISASSEMBLY	2-3
1. Circuit Board Arrangement	2-3
2. Timer/Key Function Circuit Board	2-4
3. Main Circuit Board(I)	2-4
4. Pre-Amp Circuit Board	2-4
5. Power Circuit Board	2-4
EXPLODED VIEWS	2-5
1. Cabinet & Main Frame Section	2-5
2. Packing Accessory Section.....	2-6
3. Remote Control Section	2-6

CABINET DISASSEMBLY

1. Top Case, Bottom Cover

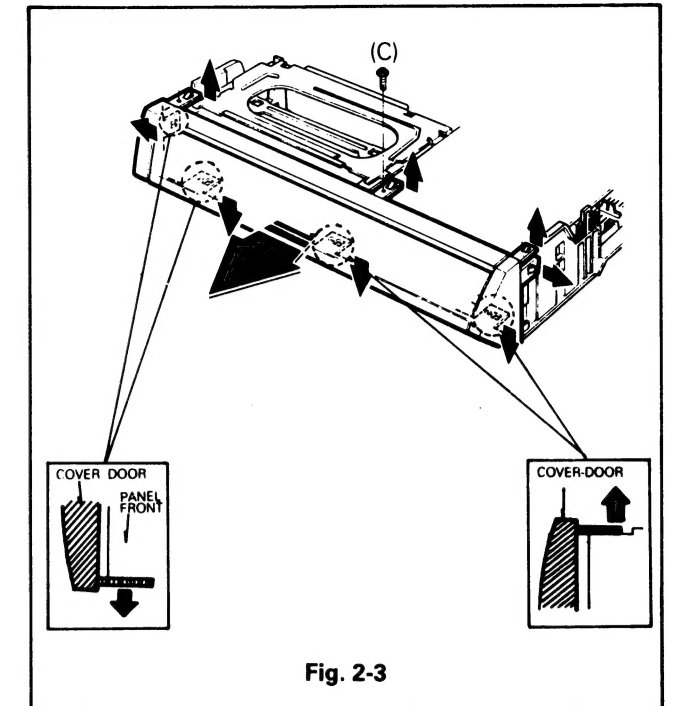
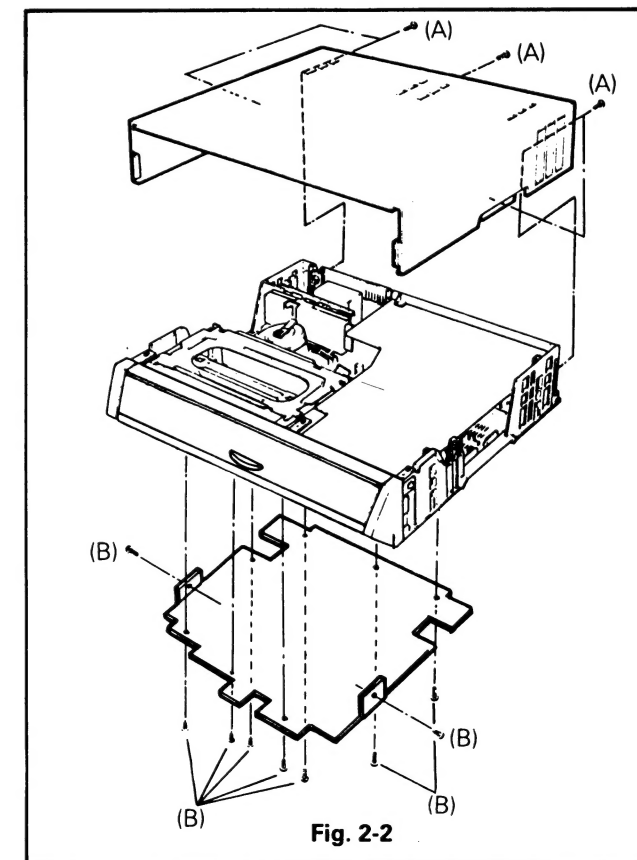
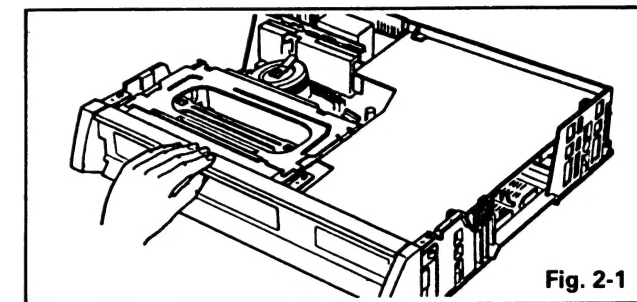
- Remove 5 screws(A). (See Fig. 2-2)
- Hold the back of Top Case and lift it up slightly backward to remove it.
- Remove 9 screws(B) to remove the Bottom Cover. (See Fig. 2-2)

2. Front Panel

- Remove the Top Cover. (See Fig. 2-2)
- Remove the Bottom Cover. (See Fig. 2-2)
- Remove 1 screws(C) on the top of the Front Panel.
- Remove the stoppers on the top of the Front Panel.
- Remove the stoppers on the bottom of the Front Panel.

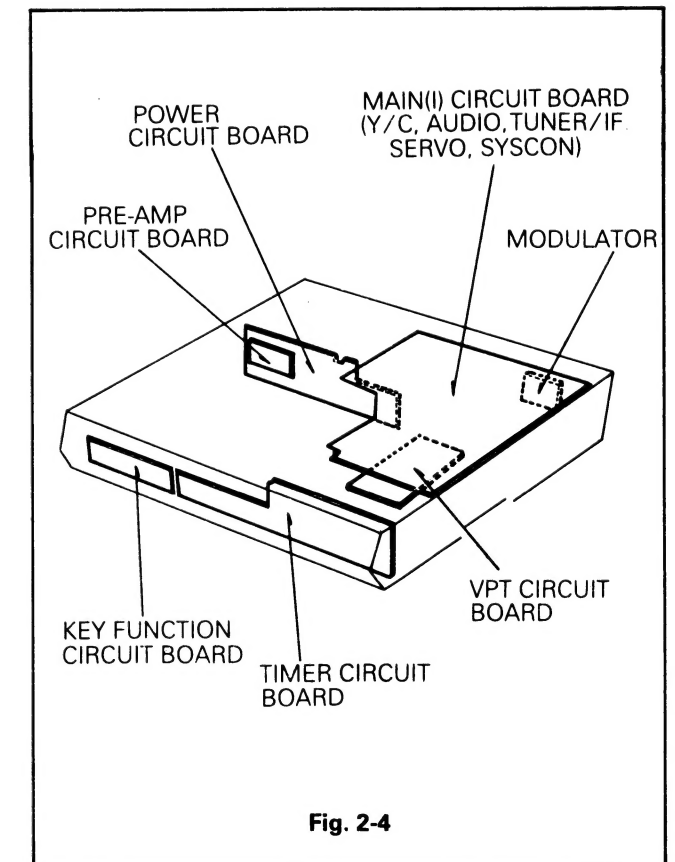
* Caution

When reassemble the Front Panel, assemble it in condition of inserting the Door Cassette inside, as shown in Fig. 2-1.



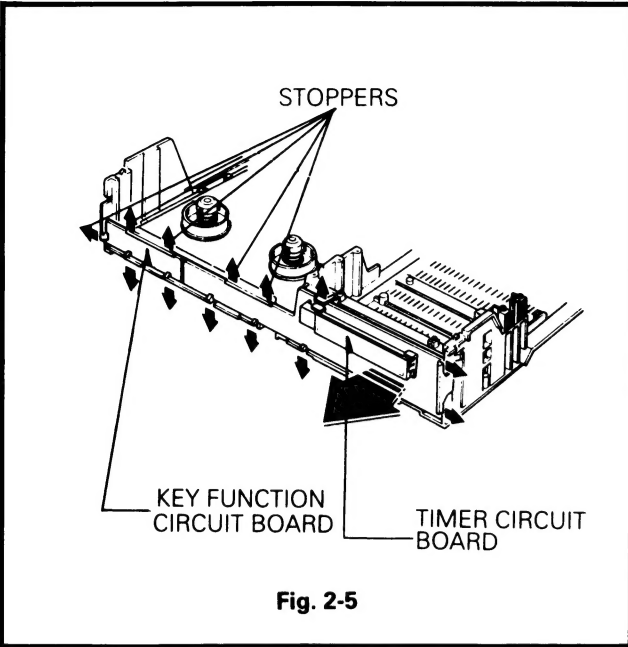
CIRCUIT BOARD DISASSEMBLY

1. Circuit Board Arrangement



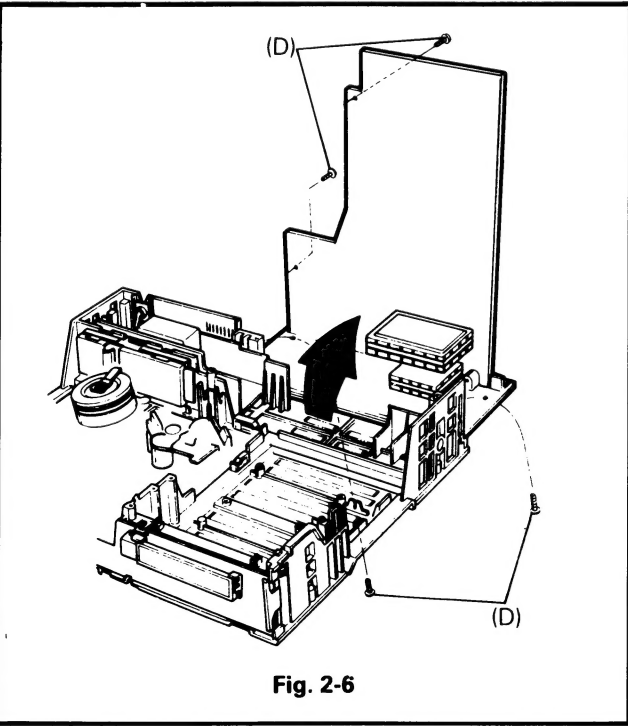
2. Timer/Key Function Circuit Board

- A. Pull the P.C.Board toward you while pressing 5 stoppers in the direction of the arrows to disengage, and remove the P.C.Board.(See Fig. 2-5)
- B. Remove the connector for complete removal.



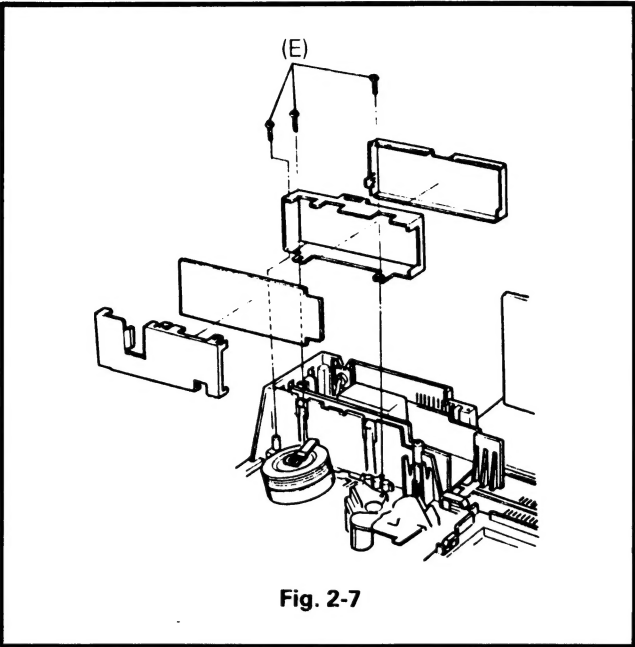
3. Main Circuit Board(I)

- A. Remove 4 screws(D).
- B. Press the stopper in the direction of the arrow to disengage and lift the rear part up and pull the P.C.Board backward.
- C. Remove the connector for complet removal.



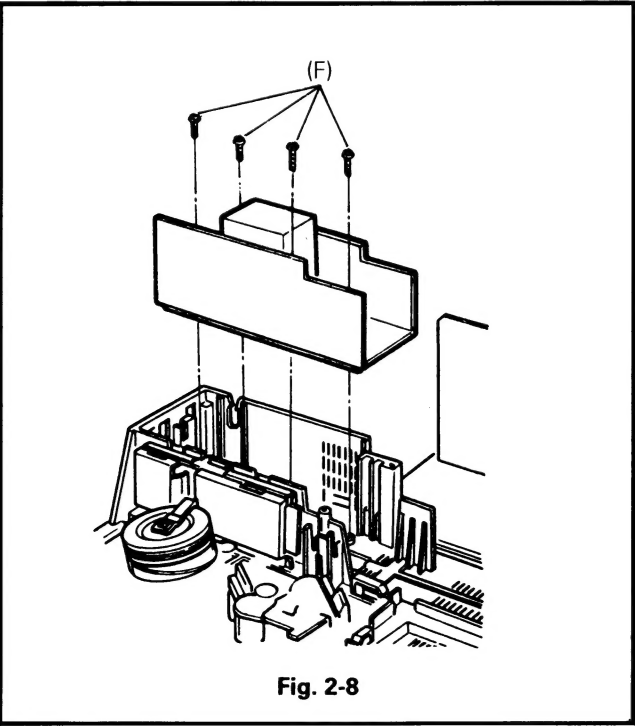
4. Pre-Amp Circuit Board

- A. Remove 3 screws(E).
- B. Remove Pre-Amp Package from Main frame.
- C. Remove bracket Pre-Amp from Pre-Amp package.
- D. Remove Pre-Amp Circuit Board from Pre-Amp package.



5. Power Circuit Board

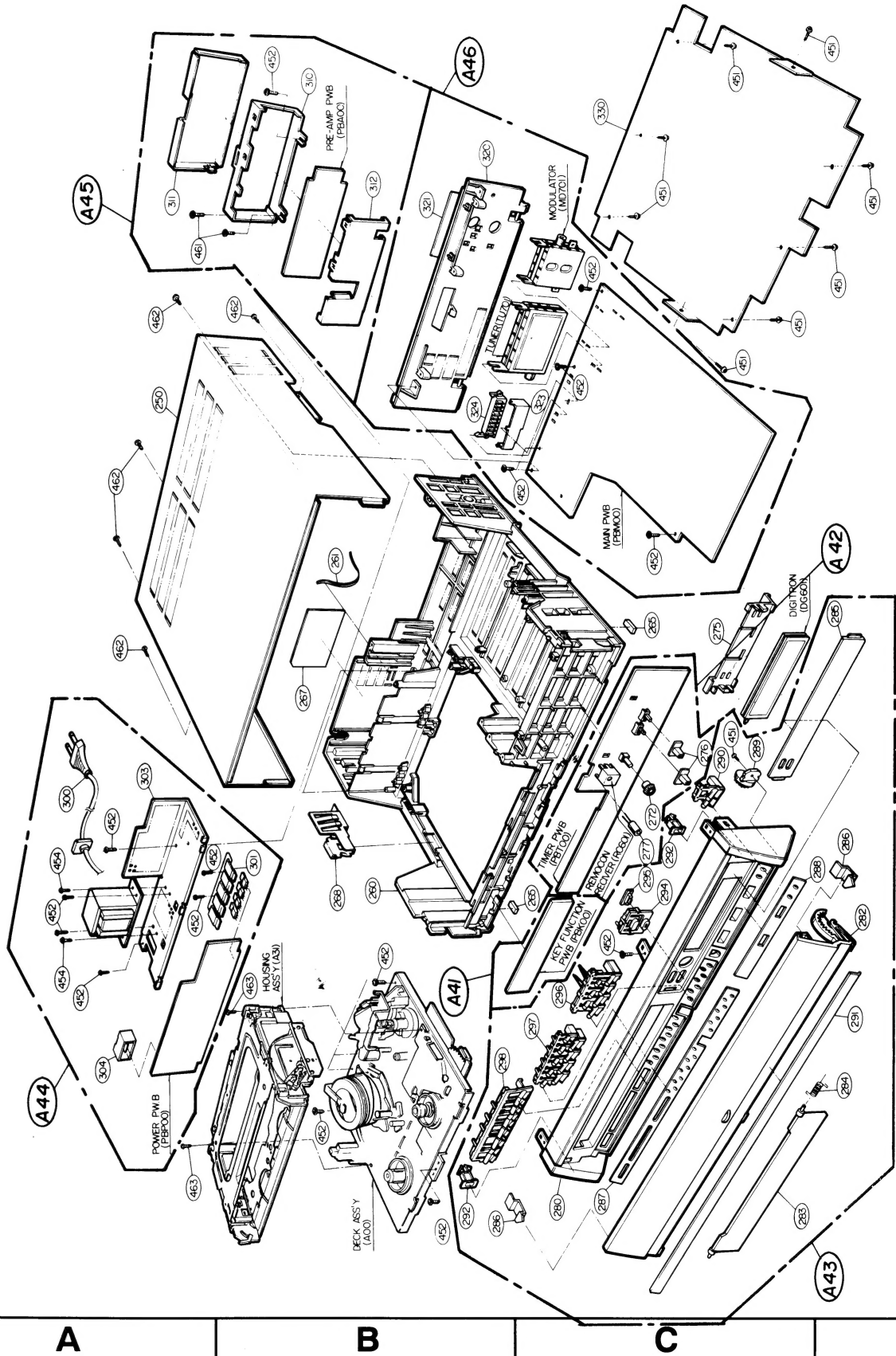
- A. Remove Main(I) P.C.Board.(See Fig. 2-6)
- B. Remove 4 screws(F).



EXPLODED VIEWS

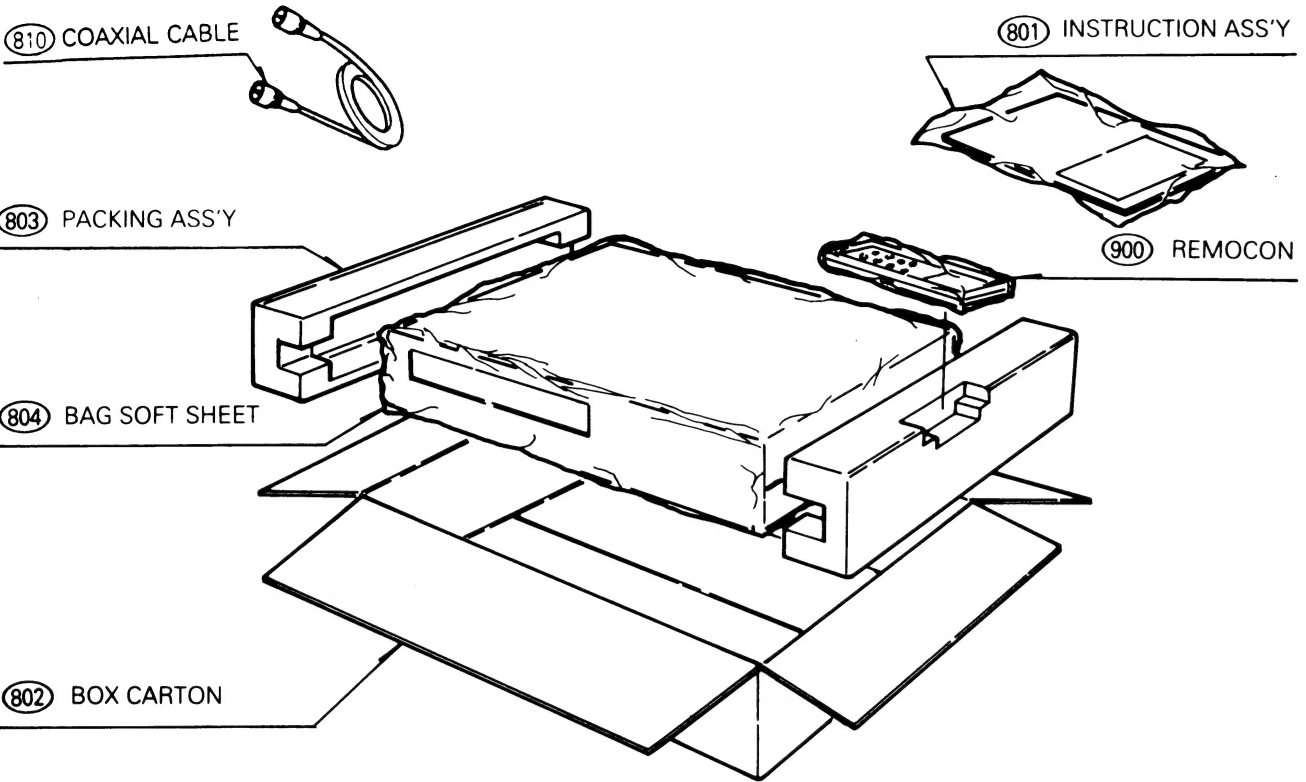
1. Cabinet & Main Frame Section

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
2) C.B.A is the abbreviation of Circuit Board Assembly.



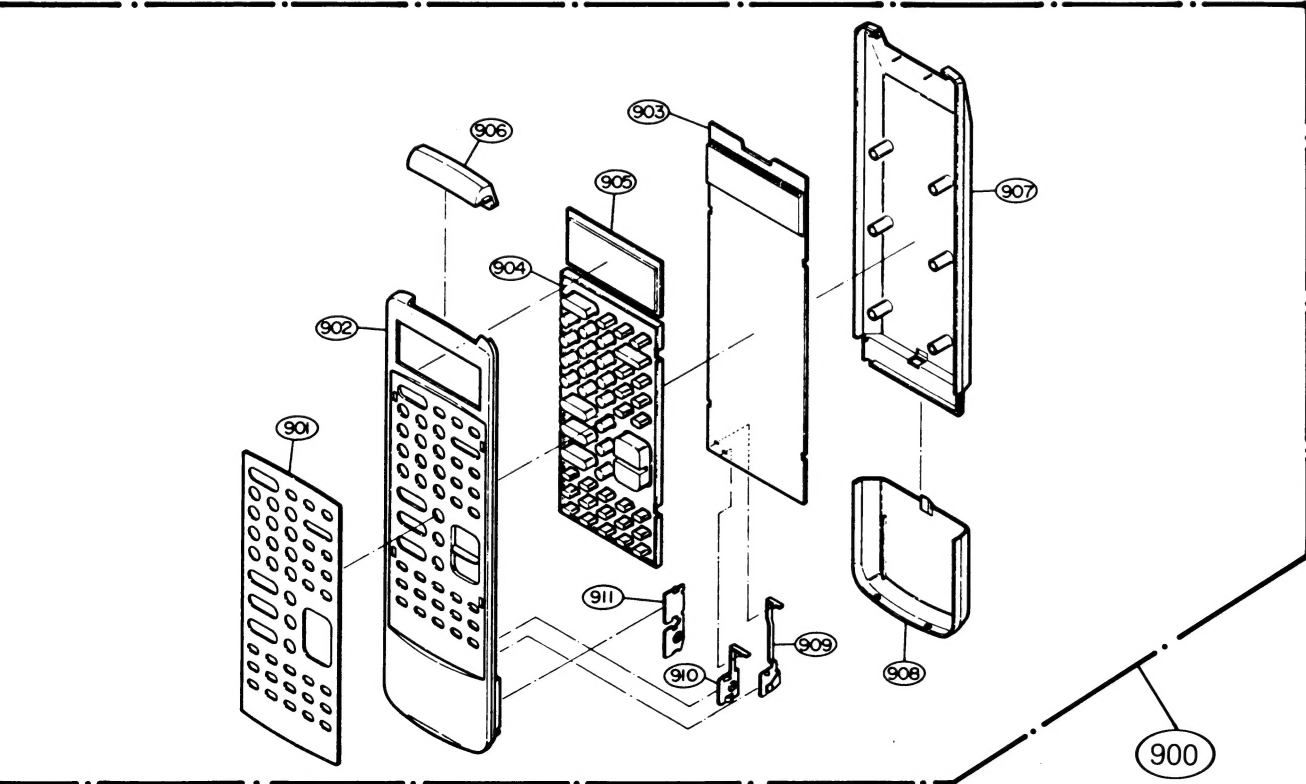
2. Packing Accessory Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



3. Remote Control Section

NOTE) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.



SECTION 3
ELECTRICAL
CONTENTS

ELECTRICAL ADJUSTMENT POINTS ARRANGEMENT 3-3

ELECTRICAL ADJUSTMENT PROCEDURES 3-4

● Electronic Test Equipment 3-4

1. Servo Circuit 3-4

2. Y/C Circuit 3-5

3. Audio Circuit 3-6

4. Tuner/IF Circuit 3-7

5. Title Circuit 3-9

ELECTRICAL TROUBLESHOOTING GUIDE 3-10

1. Power Circuit 3-10

2. Servo Circuit 3-12

3. Y/C Circuit 3-15

4. Audio Circuit 3-22

5. Syscon/Timer/Key Function Circuit 3-24

6. Tuner/IF Circuit 3-27

7. OSD/Title Circuit 3-29

BLOCK DIAGRAM 3-31

1. Power Block Diagram 3-31

2. Servo Block Diagram 3-33

3. Y/C Block Diagram 3-35

4. Pre-Amp Block Diagram 3-37

5. Audio Block Diagram 3-39

6. Syscon/Timer/Key Function Block Diagrams 3-41

7. Tuner/IF Block Diagram 3-43

8. OSD/Title Block Diagrams 3-45

CIRCUIT DIAGRAMS 3-47

1. Power Circuit Diagram 3-47

2. Servo Circuit Diagram 3-49

3. Y/C Circuit Diagram 3-53

4. Pre-Amp Circuit Diagram 3-57

5. Audio Circuit Diagram 3-59

6. Syscon/Timer/Key Function Circuit Diagrams 3-61

7. Tuner/IF Circuit Diagram 3-63

8. OSD/Title Circuit Diagram 3-65

9. Connection Circuit Diagram 3-67

PRINTED CIRCUIT BOARD DIAGRAMS 3-69

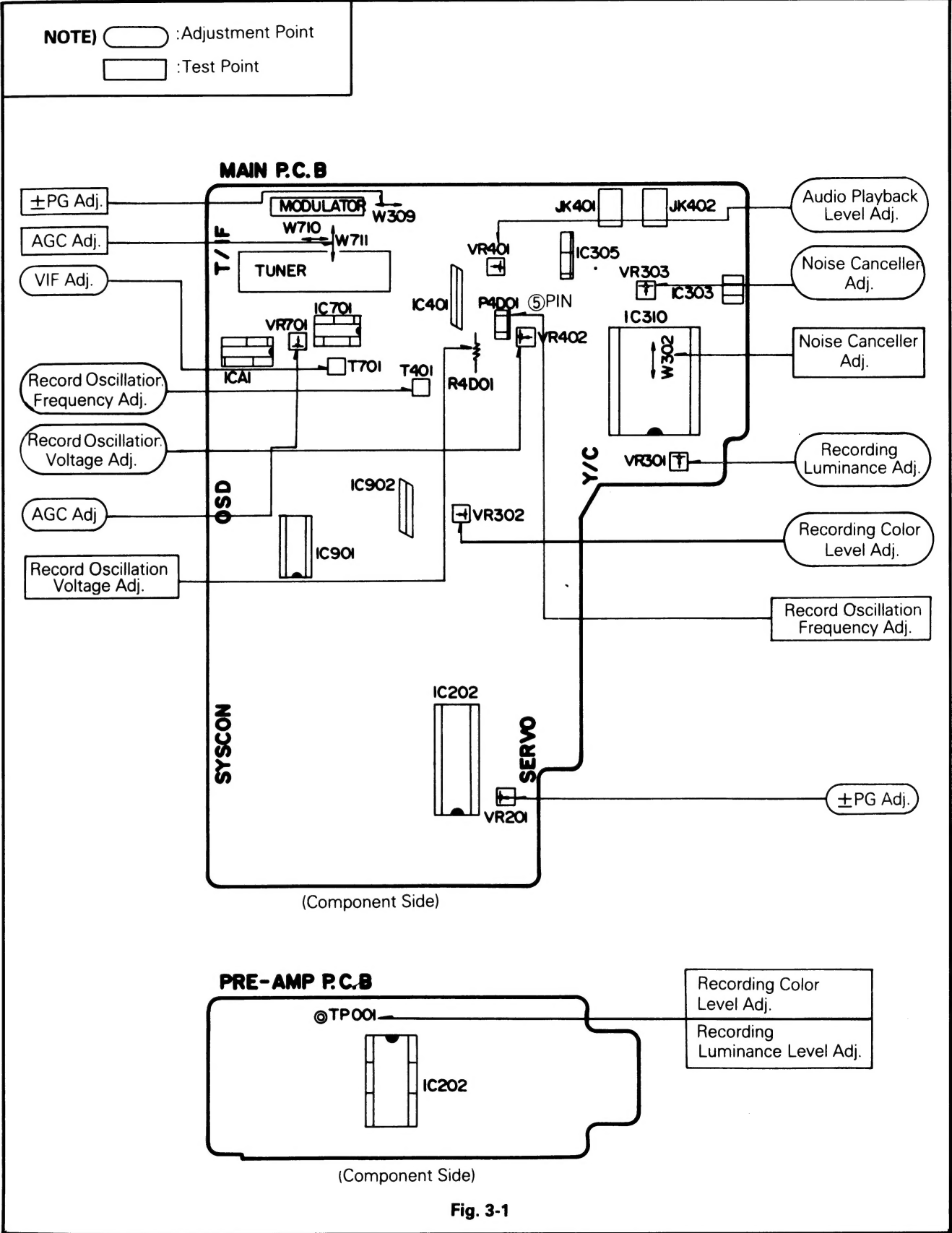
1. Main P.C.Board 3-69

2. Power P.C.Board 3-73

3. Pre-Amp P.C.Board 3-74

4. Timer / Key Board P.C.Board 3-74

ELECTRICAL ADJUSTMENT POINTS ARRANGEMENT



ELECTRICAL ADJUSTMENT PROCEDURES

● Electronic Test Equipment :

• Oscilloscope	• D.C Power Supply
• Video Signal Generator	• PAL B/G Signal OSD
• Modem Tester	• Sweep & Marker OSC
• Audio Signal Generator	• Monitor Scope
• Level Meter	• Digital Multimeter
• Frequency Counter	• Digital Voltmeter

1. Servo Circuit

1) ±PG Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Playback	6.5H±0.5H	VR201	W309 (VIDEO OUT TERMINAL)

A. Purpose :
For phase dividing video A/B head with 180° and tracing each track exactly to meet head switching point with VHS SPEC.

B. Procedure :

- Set PAL/SP test tape to playback.
- Connect CH-1 terminal of oscilloscope to W900(H.SW) and CH-2 terminal to W309.(Video Out terminal)
- Adjust VR201 so that the distance from A(B) head selection point of H.SW signal to the starting point of vertical synchronized signal is 6.5H(416 μ sec, 1H=64 μ sec) to trigger the complex video signal of CH-2 to CH-1 H.SW.
- The conversion of A/B Head SW signal uses the Polarity Invert Knob of oscilloscope.

Reference :

- ±PG adjustment is practiced in the state of the RF level being maximum and Servo System locking.
- The location difference of A/B Head adjustment should be within ±0.5H(32 μ sec).
- The Adjustment Spec. and the Practice difference should be within ±0.5H(32 μ sec).
- Oscilloscope and VCR set should connect GND.

Waveform

Fig. 3-2

2. Y/C Circuit

1) Noise Canceller Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Playback	0.4V±10mVp-p	VR303	W302

a) Connect the Video Signal Generator to Video in terminal.

b) Connect CH-1 terminal of oscilloscope to W302.

c) Set PAL SP test tape to playback. (with 100% white signal)

d) Adjust VR303 so that Video waveform is 0.4V±10mVp-p.

Waveform

Fig. 3-3

2) Recording Color Level Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record(LP mode)	80mV±5mVp-p	VR302 REC-C	Pre-Amp(TP001) REC. Current

A. Procedure :

- Connect the Video Signal Generator to Video in terminal.
- Connect CH-1 terminal of oscilloscope to TP2 of Pre-Amp Circuit Board.
- Adjust VR302 so that the minimum luminance FM output is 80mV±5mVp-p

Waveform

Fig. 3-4

3) Recording Luminance Level Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record(LP mode)	1.6V±10mVp-p	VR301 REC.-Y	Pre-Amp(TP001) REC. Current

A. Procedure :

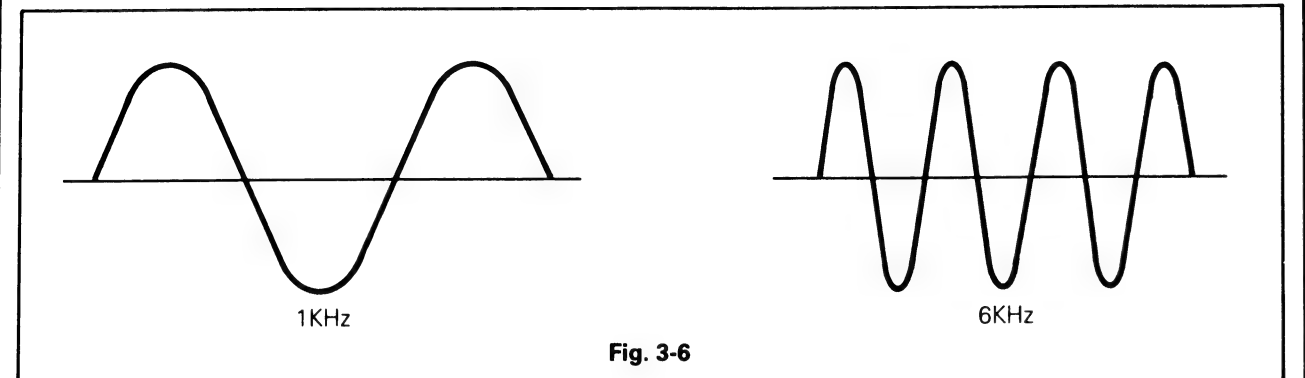
- Connect the Video Signal Generator to Video in terminal.
- Connect CH-1 terminal of oscilloscope to TP2 of Pre-Amp Circuit Board.
- Adjust VR301 so that the luminance FM output is 1.6V±10mVp-p.

Waveform

Fig. 3-5

3. Audio Circuit

1) Audio Playback Level Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Playback	$-3 \pm 1.5\text{dBm(Scart)}$	VR401	Audio Out Jack
A. Purpose: This is for adjusting Audio playback level to specification. B. Procedure a) Connect the Level Meter to Audio Out Terminal(Scart Pin). b) Adjust VR401 so that 1KHz output level of Level Meter is $-3 \pm 1.5\text{dBm(Scart)}$, after playing the standard tape. c) At this time, make 6KHz level is maximum to adjust R/P Head azimuth.			
 Fig. 3-6			

2) Record Oscillation Frequency Adjustment

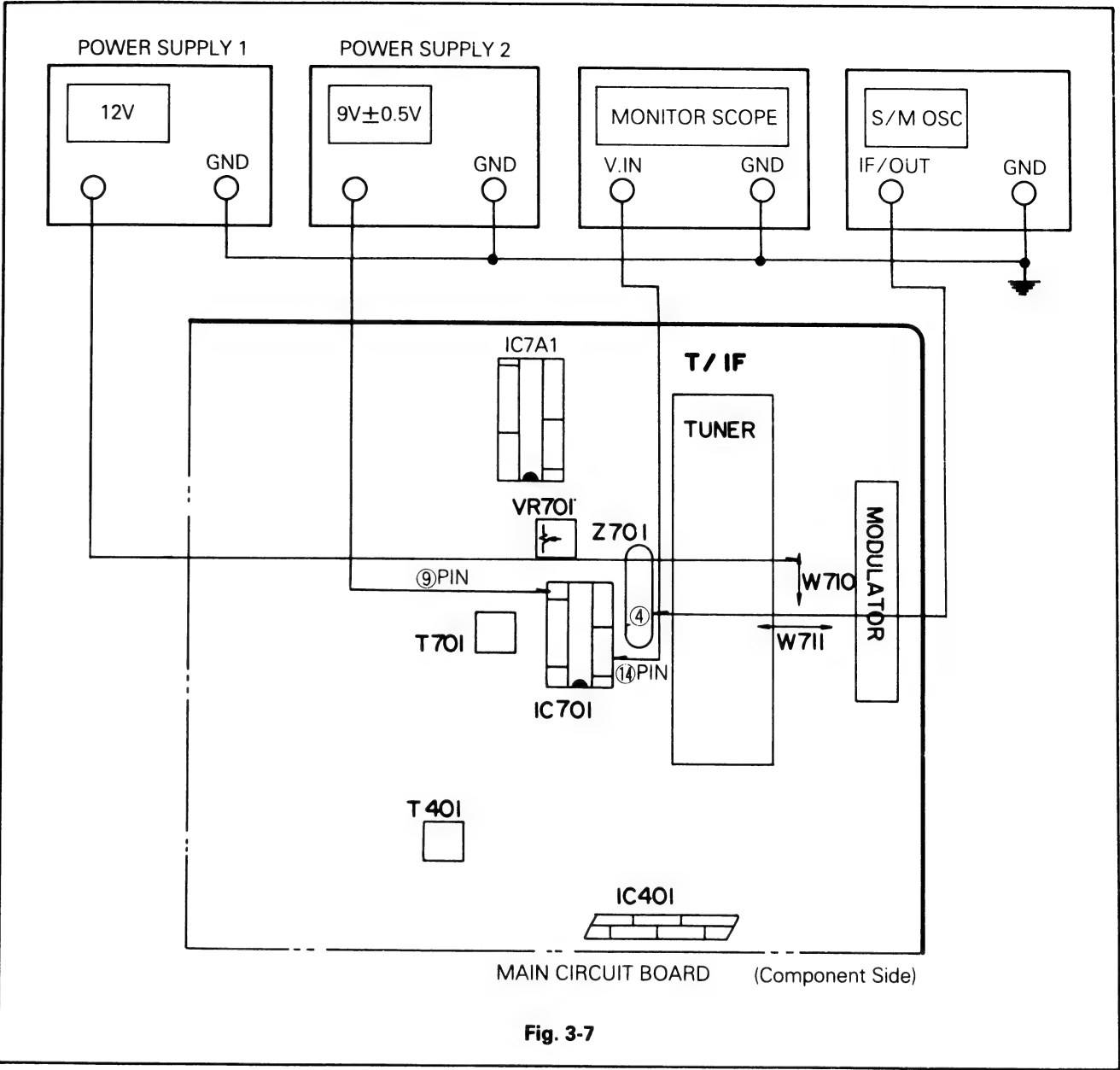
MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record	$70\text{KHz} \pm 5\text{KHz}$	T401	⑤pin of P4D01
A. Purpose: This is for adjusting the oscillation frequency to specification in recording. B. Procedure: a) Connect CH-1 terminal of oscilloscope to P4D02. b) Connect the Frequency counter to P4D02. c) Confirm that the oscillation frequency in recording is $70\text{KHz} \pm 5\text{KHz}$ to connect the frequency counter terminal to TP401. d) At this time, adjust OSC coil(T401) and make the oscillation frequency fit to $70\text{KHz} \pm 5\text{KHz}$.			

3) Record Oscillation Voltage Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
Record	2.3mV RMS	VR402	R4D01 Both terminal
A. Purpose : This is for adjusting the bias current to specification in recording. B. Procedure: a) Connect the Level Meter terminal to both terminals of R4D01. b) Confirm that the oscillation voltage is 2.3mV RMS to connect the Level Meter terminal to both terminals of Lug pin R/P head PWB during recording. c) At this time, adjust VR402 and make the oscillation voltage fit to specification(2.3mV RMS)			

4. Tuner/IF Circuit

1) Adjustment Points and Connection



* Caution in testing

- When practicing this adjustment, adjust after more than 20 minutes with VCR set turning on.
- Adjust after completing itself test of measuring apparatus.
- Sweep OSC Marker frequency is followed by Table 1.
- IF are adjusted and Tuner is not

* Abbreviation

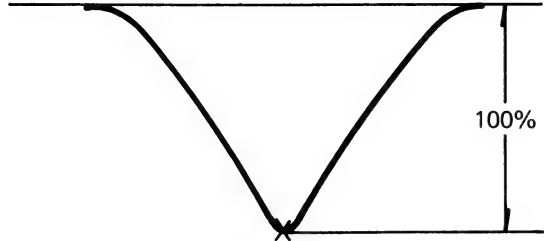
- APC: Adjacent Picture Carrier
- SIF: Sound Intermediate Frequency
- CIF: Color Intermediate Frequency
- CEN: Center Frequency
- PIF: Picture Intermediate Frequency
- ASC: Adjacent Sound Carrier

〈Table 1〉 Frequency Table

(Unit : MHz)

	1	2	3	4	5	6
FREQUENCY	32.40	33.40	34.47	36.00	38.90	40.40
MARKER NAME	APC	SIF	CIF	CEN	PIF	ASC

2) VIF Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
EE(without signal)	Refer to waveform	T701	See Fig. 3-7
<div><div>A. Procedure :<ul style="list-style-type: none">a) Attenuate the sweep OSC gain by 25dB~30dB ATT.(output gain 80~90dBu)b) Apply DC 12V to W710(power supply 1).c) Apply DC 9V±0.5V to the ⑨pin of IC701.(power supply 2)d) Adjust T701 so that monitor waveform is as shown in Fig. 3-8.</div><div><div>Waveform</div><div>Fig. 3-8</div></div></div>			

3) AGC Adjustment

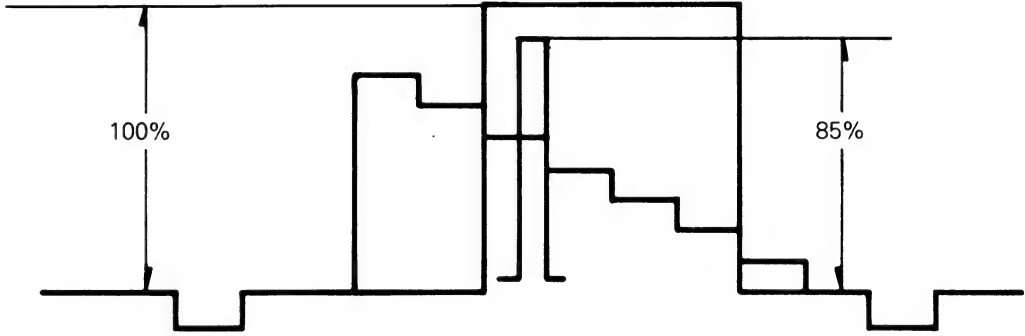
MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
EE(with signal)	4.6V±0.1V	VR701	W711
<div><div>A. Procedure :<ul style="list-style-type: none">a) Be tuning 9CH(strength of electric field 70dB±1dB) fine.b) Connect the Digital Voltmeter to W711.c) Adjust VR701 so that the digital voltmeter is 4.6V±0.1V.</div><div>Reference : Maintain the input gain in adjusting AGC faithfully.</div></div>			

4) SIF Adjustment

MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
CH(normal reception)	Audio Distortion : low price	T702	Audio output (SCART or RCA)
<div><div>A. Procedure :<ul style="list-style-type: none">a) Be tuning PAL B/G CH(strength of electric field : more than 60dBu) fine.b) Adjust T702(detect coil) so that Audio distortion is low price.</div></div>			

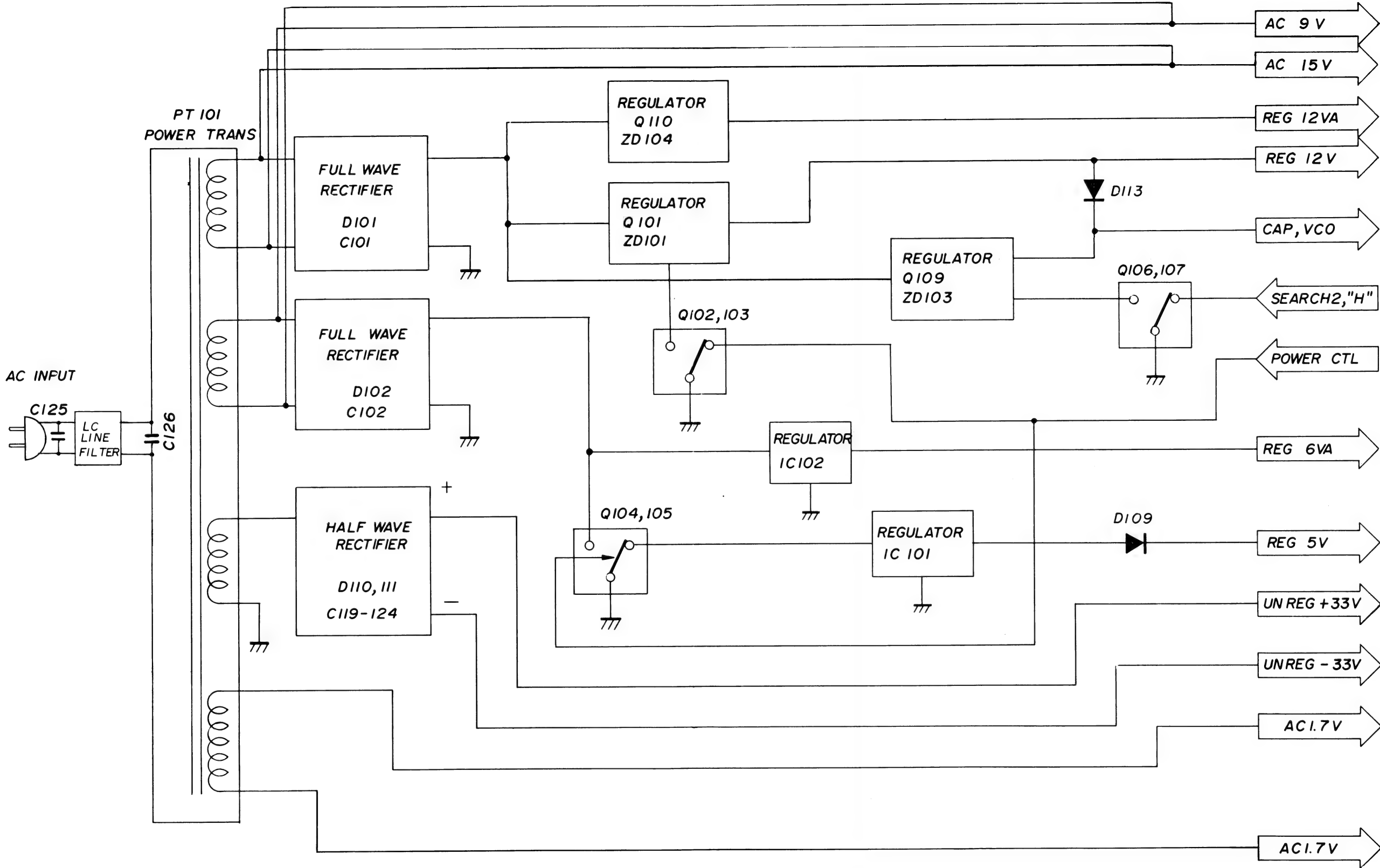
5. Title Circuit

1) Title Character Level Adjustment

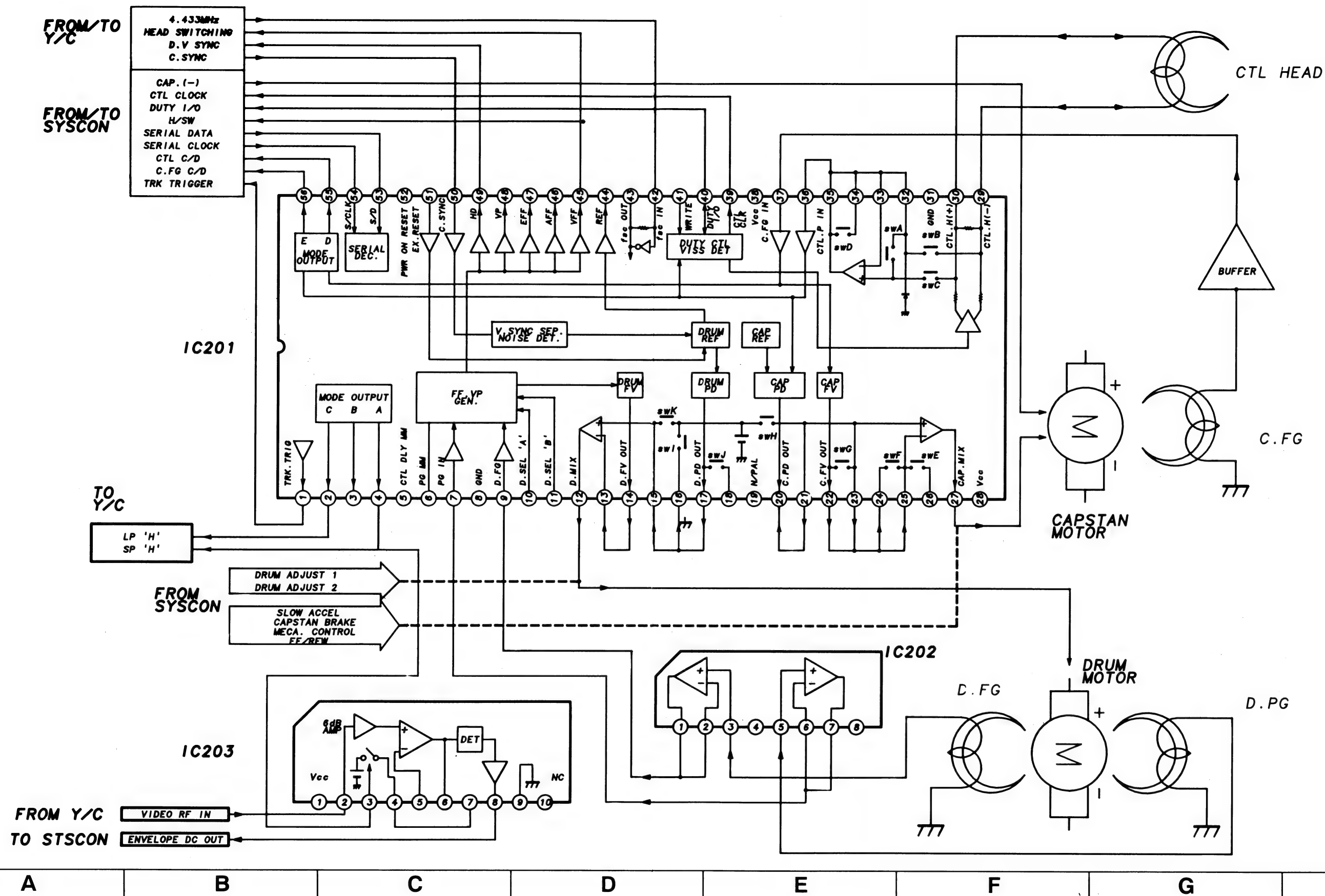
MODE	SPECIFICATION	ADJUSTMENT POINT	TEST POINT
EE(Reception Tuner)	85% white	VR901	W999
<div><div>A. Purpose Maintain light of title character to the best condition in recording.</div><div>B. Procedure :<ul style="list-style-type: none">a) Receive signal with 100% white signal.b) Connect the probe of scope to W999.c) Adjust VR901 so that the level of character is same as the level of 85% white signal.(standard 100% white signal)</div></div>			
<div><div>Waveform</div><div>Fig. 3-9</div></div>			

BLOCK DIAGRAMS

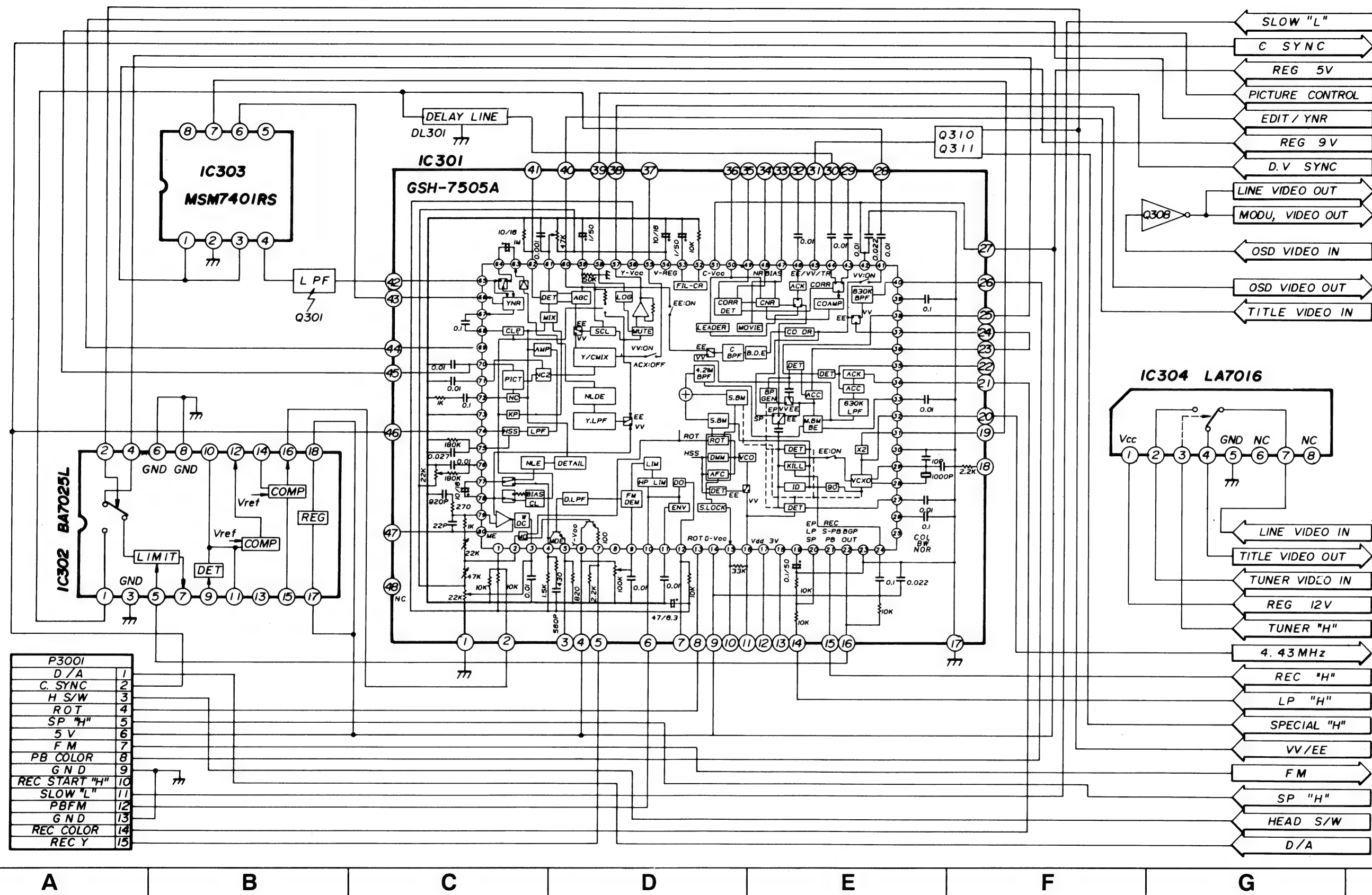
1. Power Block Diagram



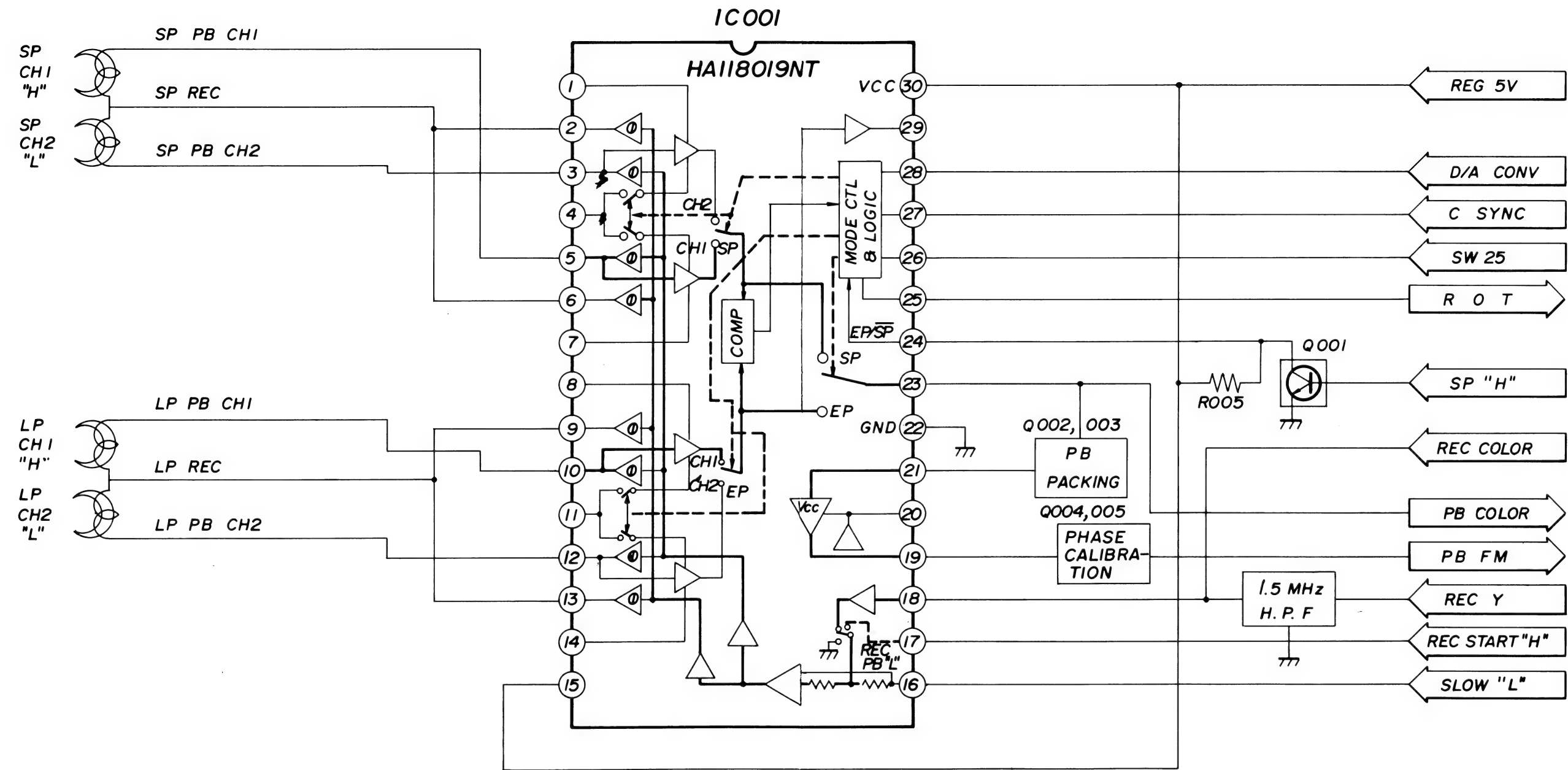
2. Servo Block Diagram



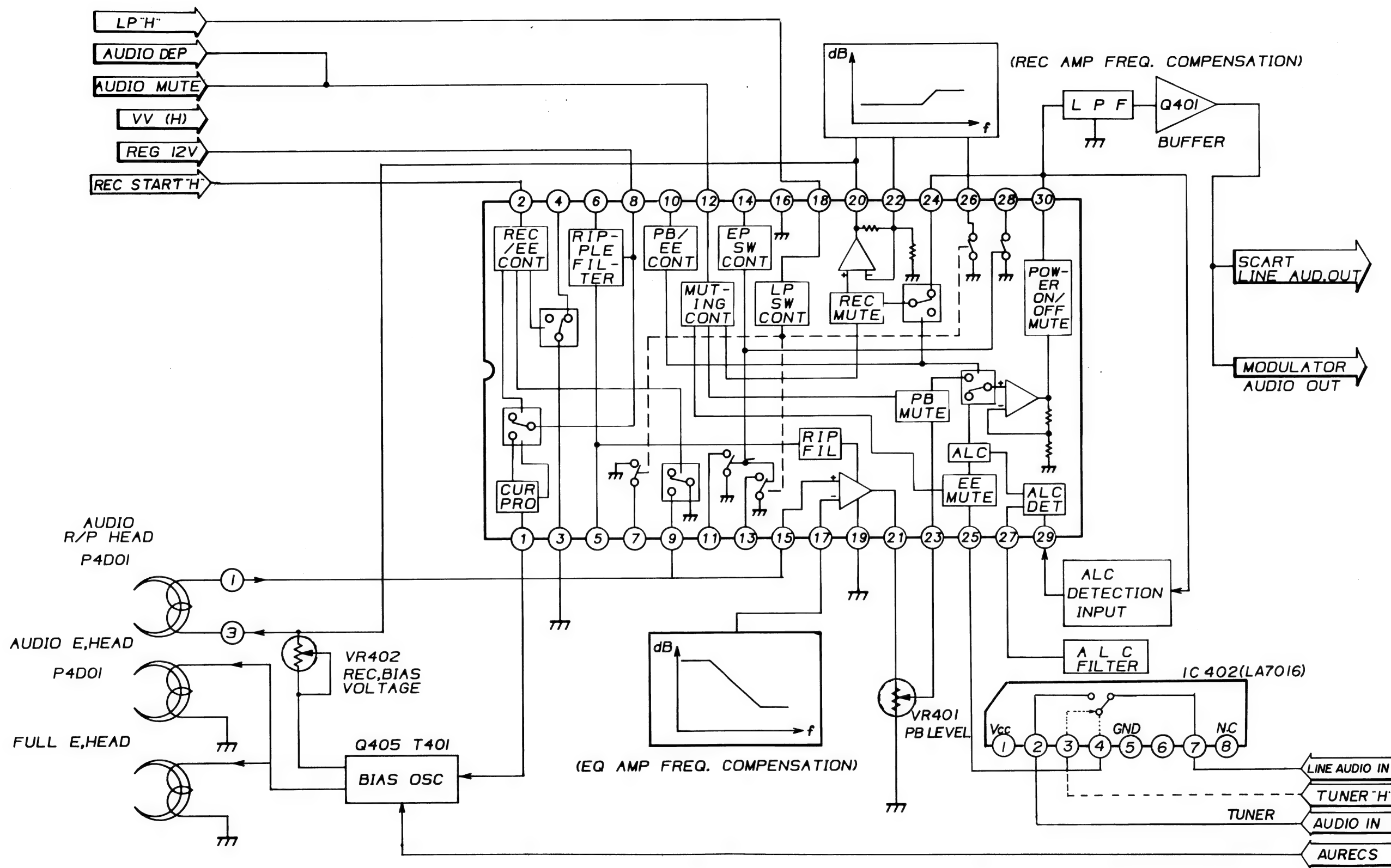
3. Y/C Block Diagram



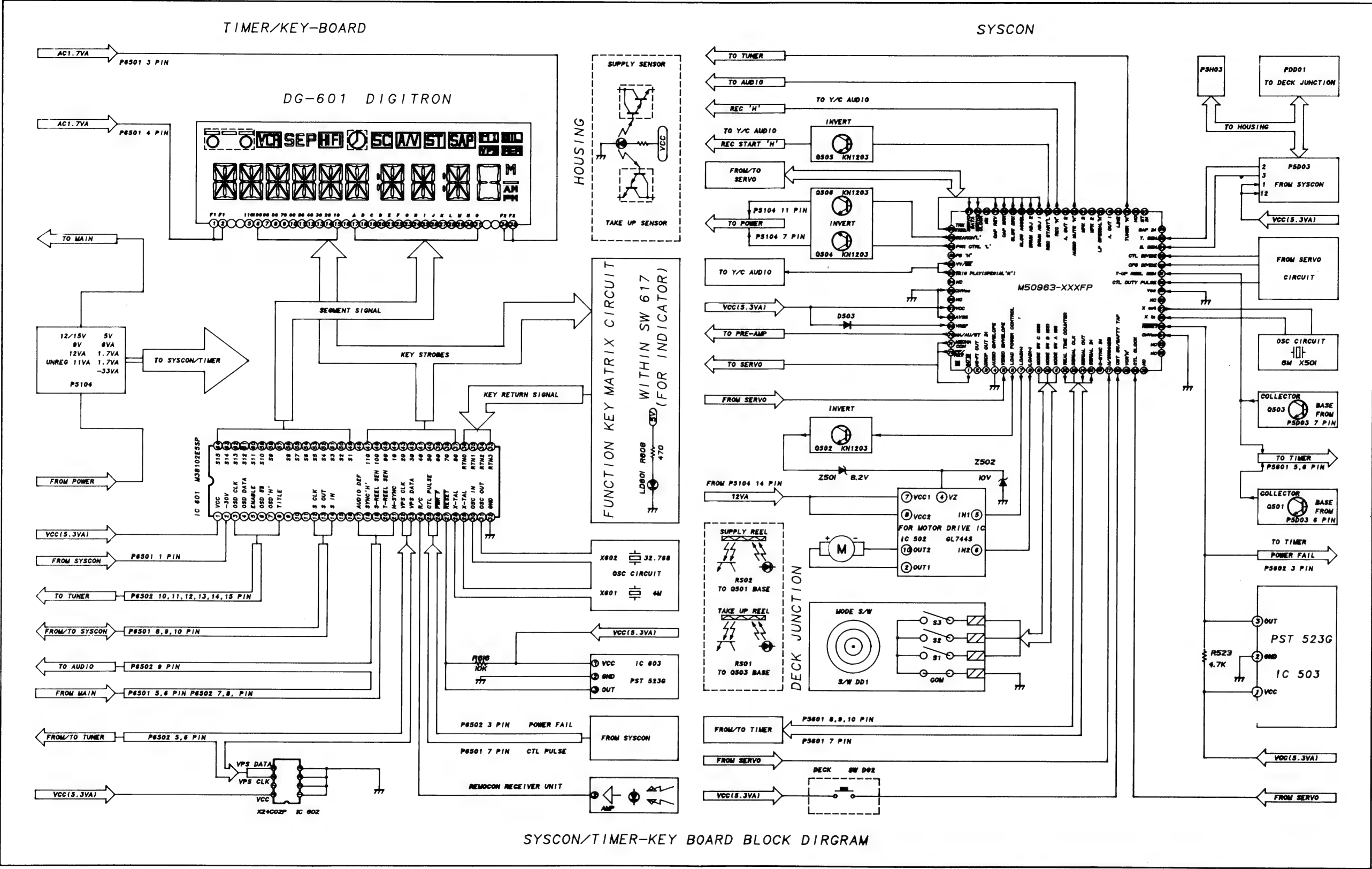
4 Pre-Amp Block Diagram



5. Audio Block Diagram

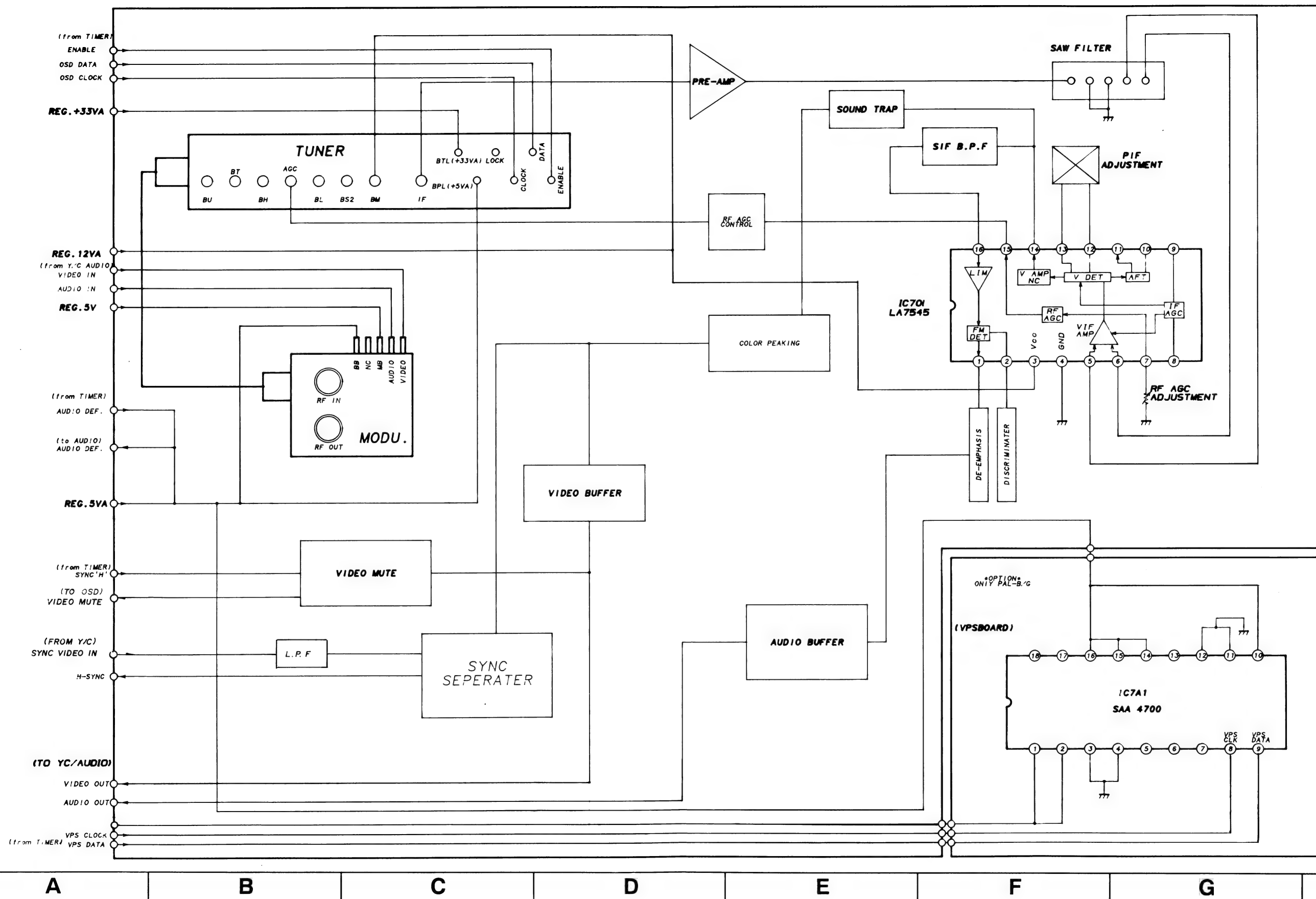


6. Syscon/Timer/Key Function Block Diagram

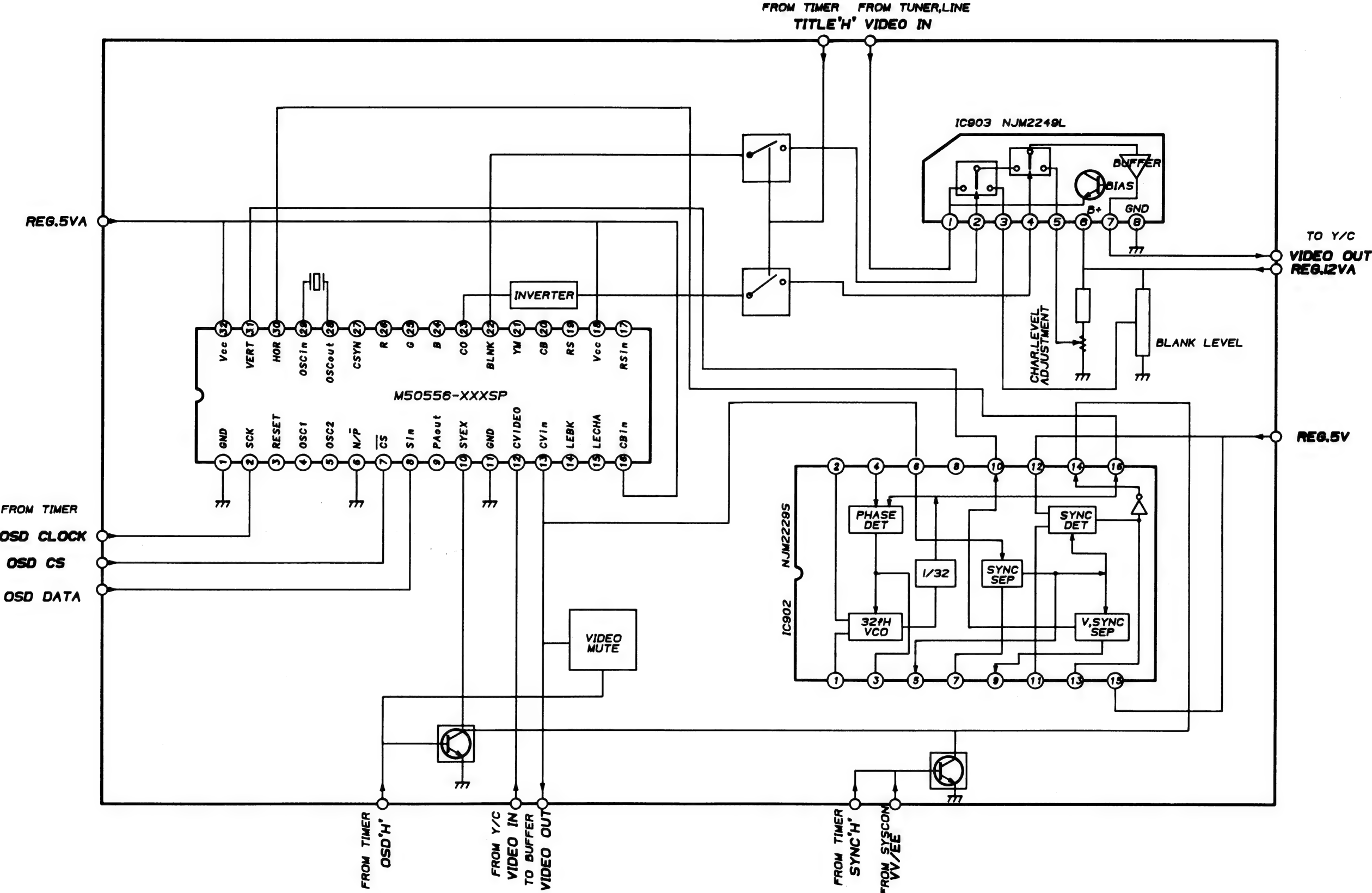


SYSCON/TIMER-KEY BOARD BLOCK DIRGRAM

7. Tuner/IF Block Diagram



8. OSD/Title Block Diagram

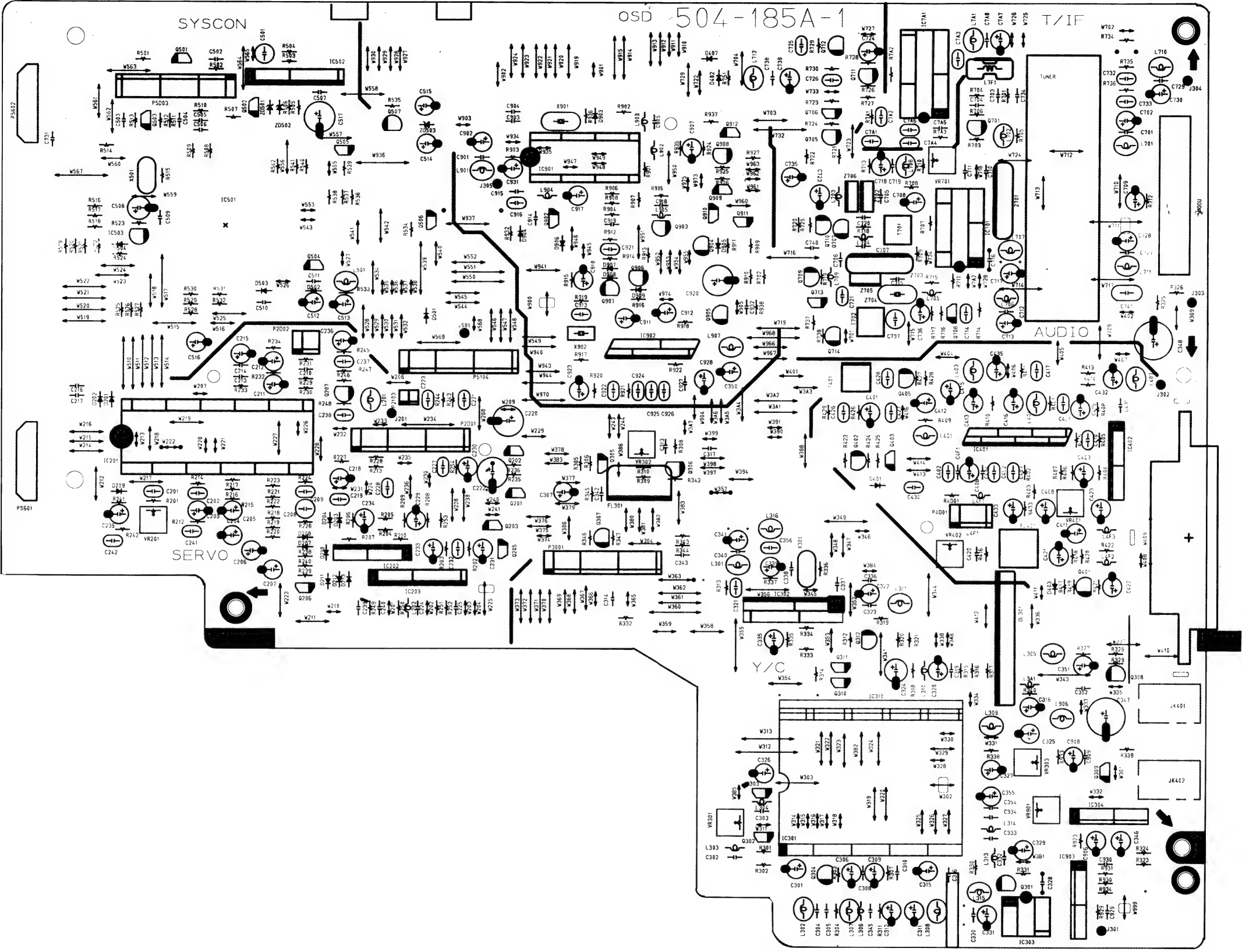


1



PRINTED CIRCUIT BOARD DIAGRAMS

1. Main P.C.Board



(Component Side)

A

B

C

D

E

F

G

H

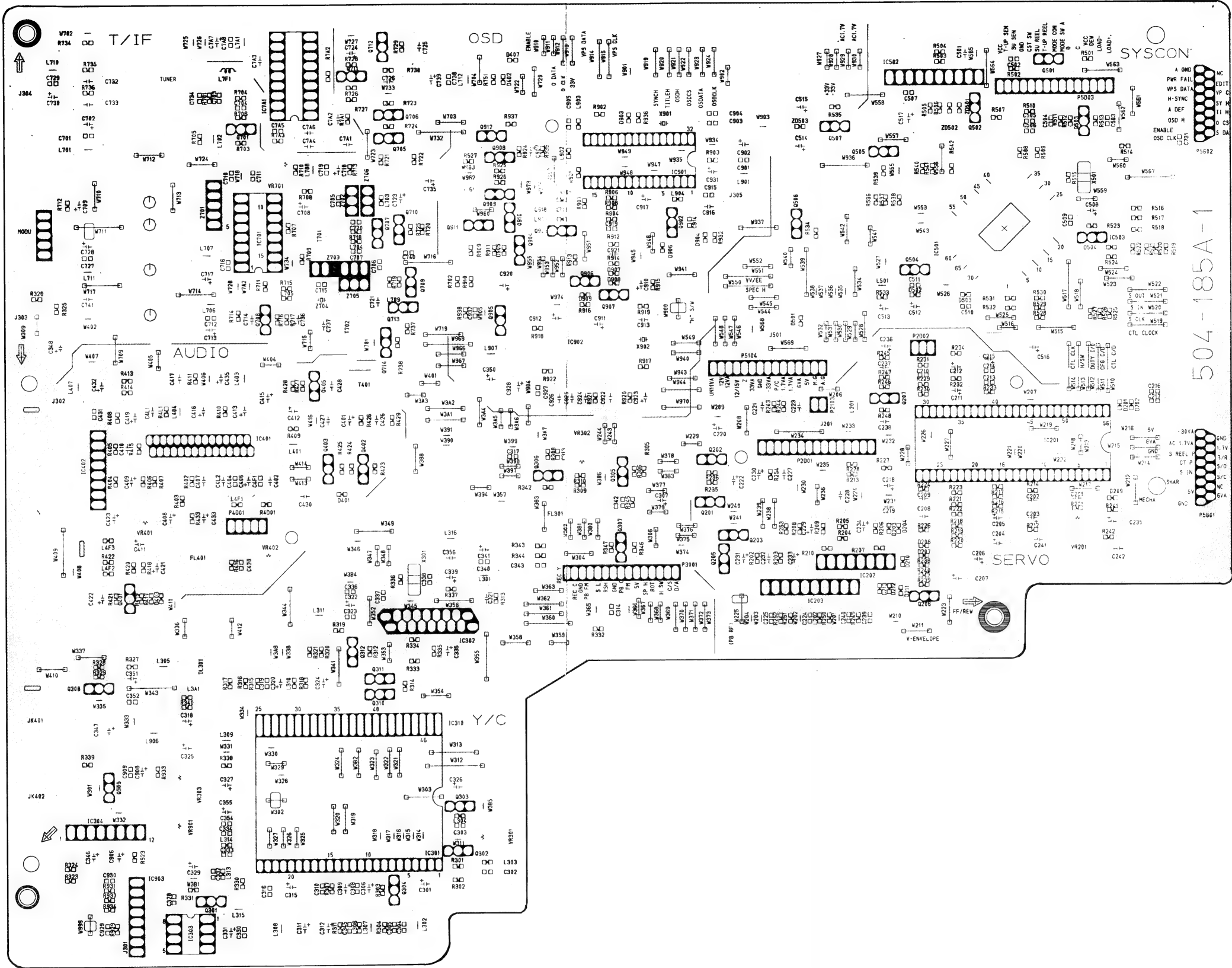
5

4

3

2

1



(Solder Side)

A

B

C

D

E

F

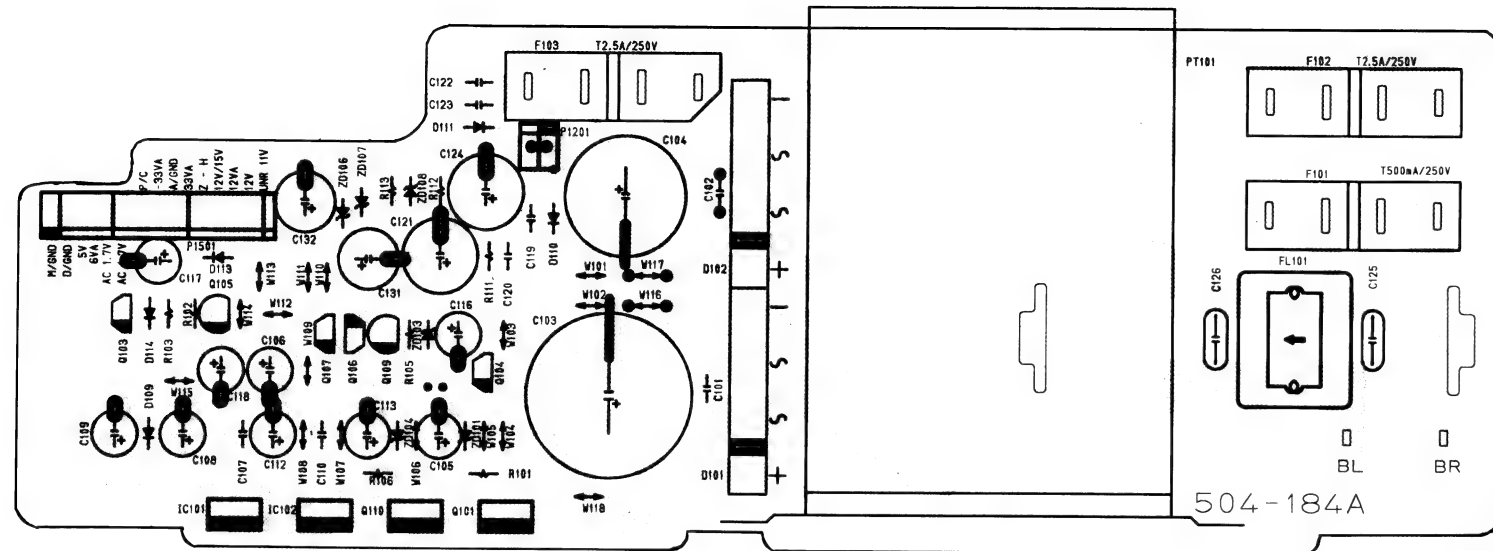
G

H

5

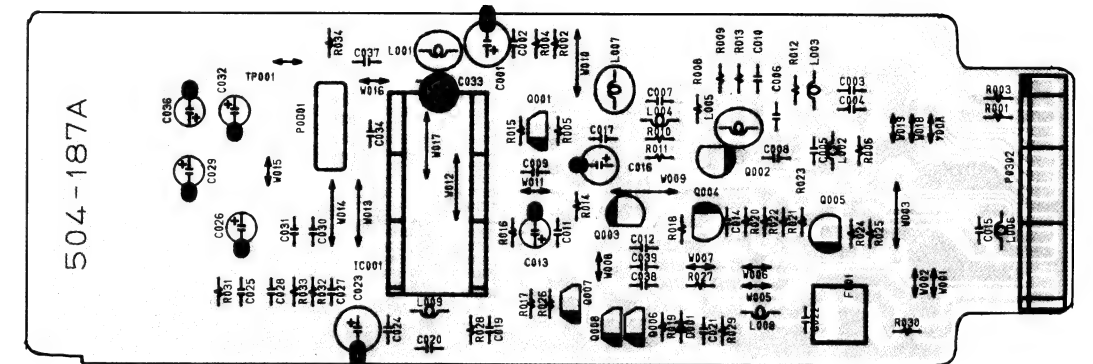
2. Power P.C.Board

4



(Component Side)

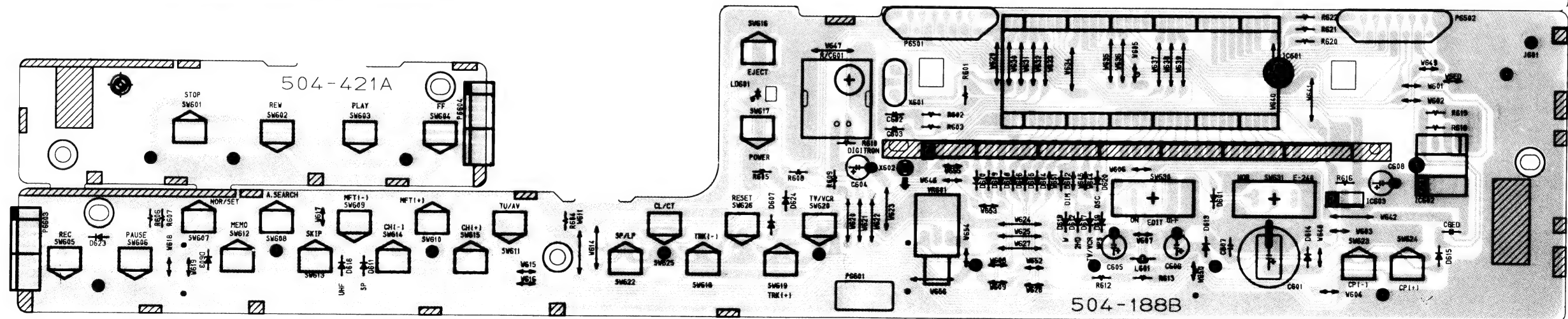
3. Pre-Amp P.C.Board



(Component Side)

4. Timer/Key Board P.C.Board

2



(Component Side)

A

B

C

D

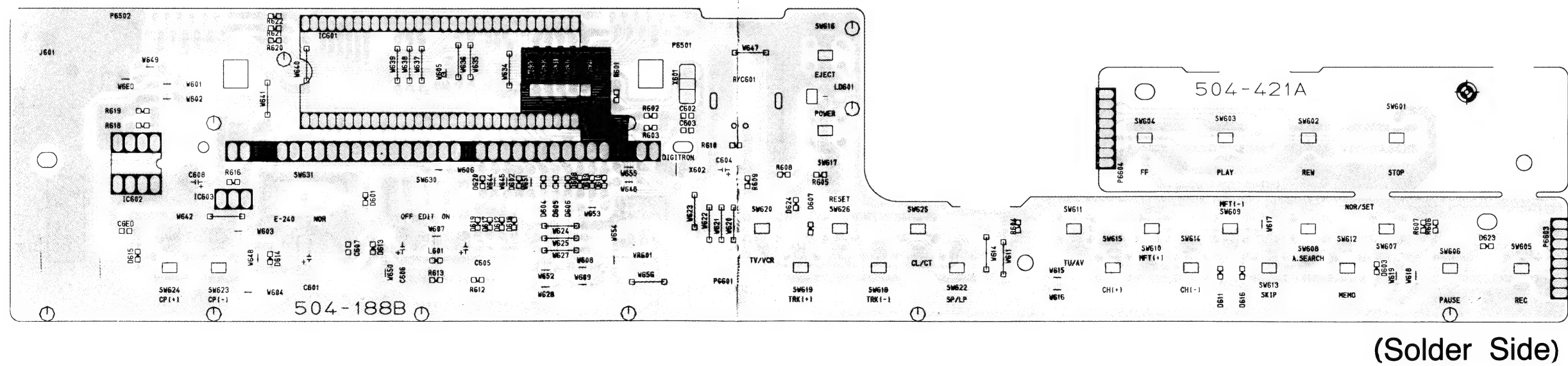
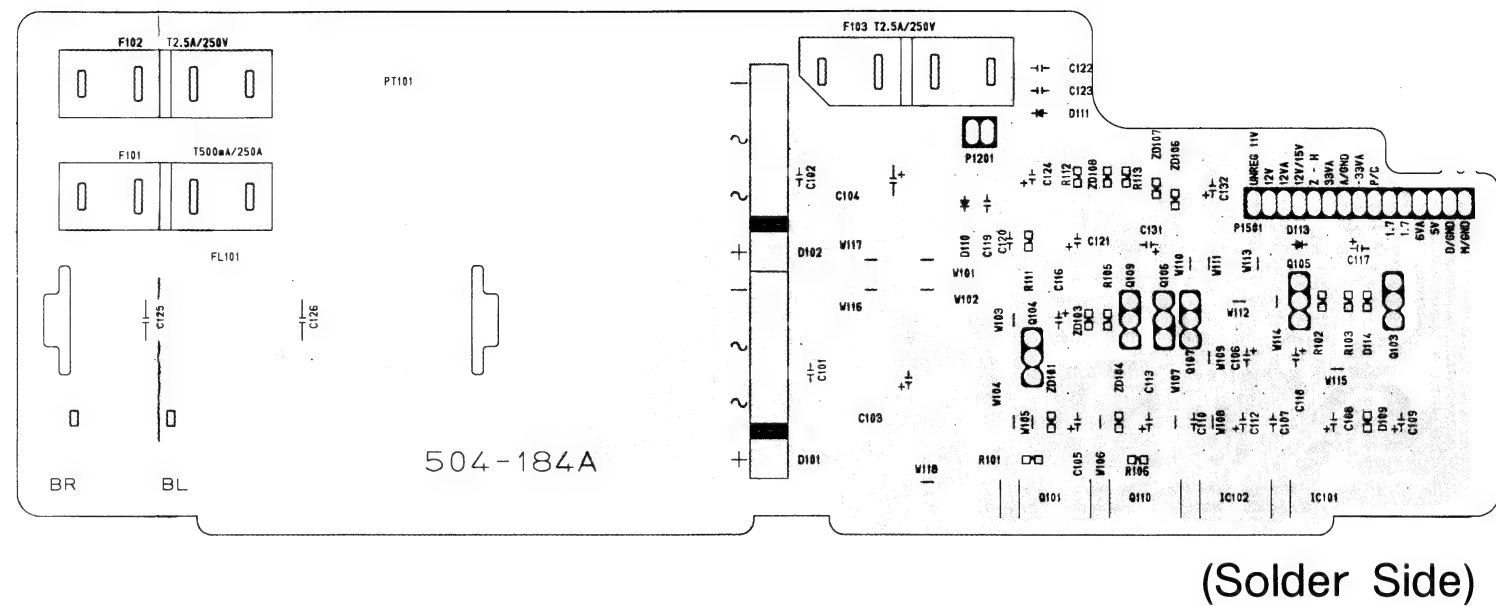
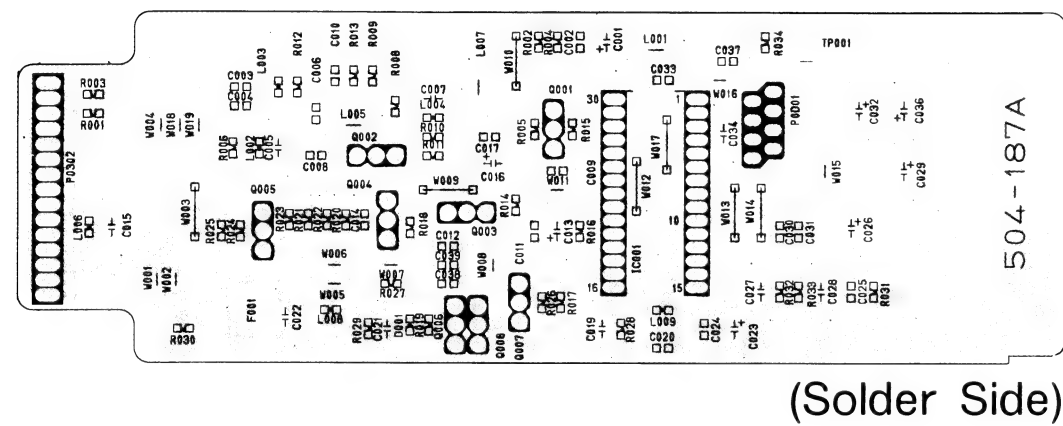
E

F

G

H

4



A

B

C

D

E

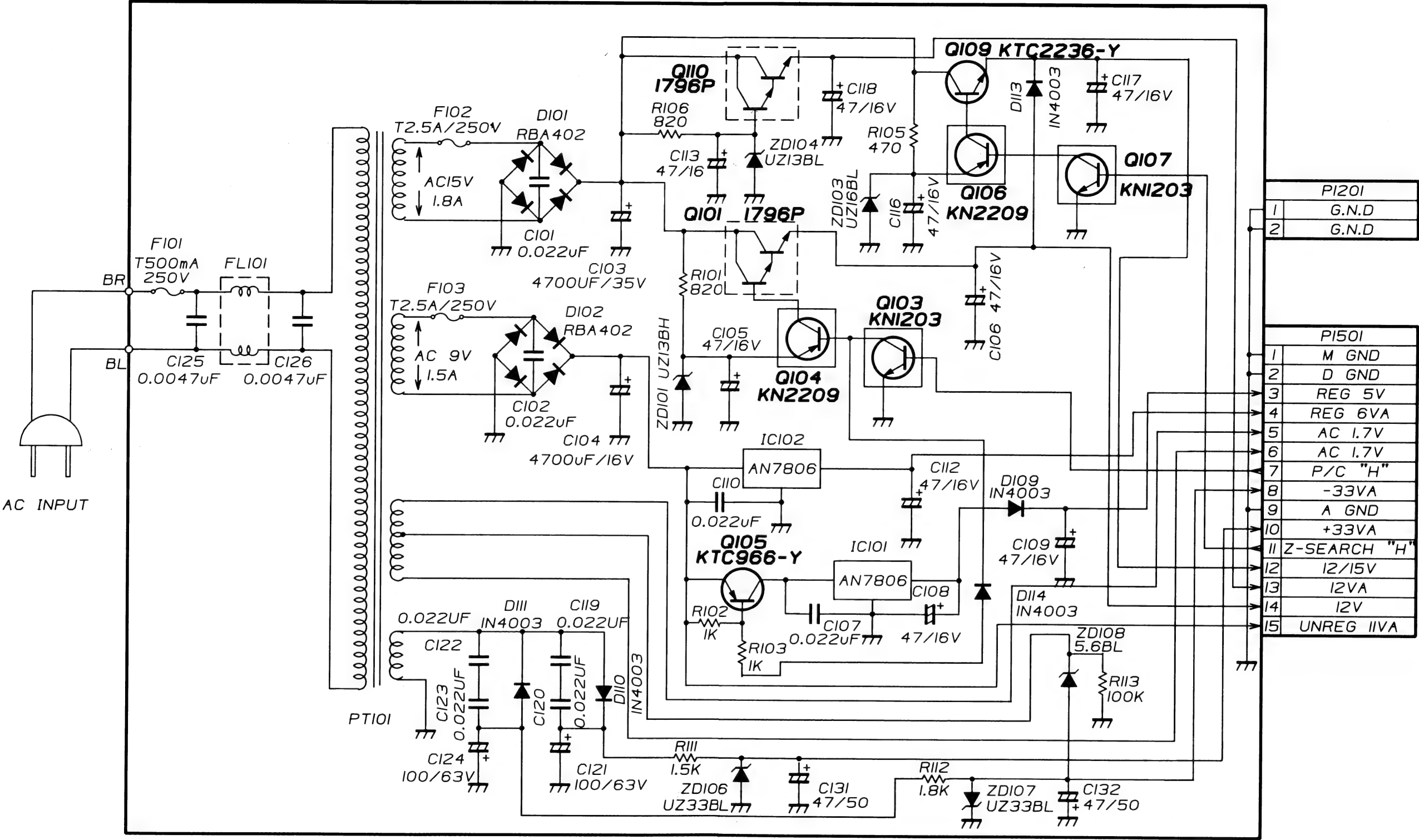
F

G

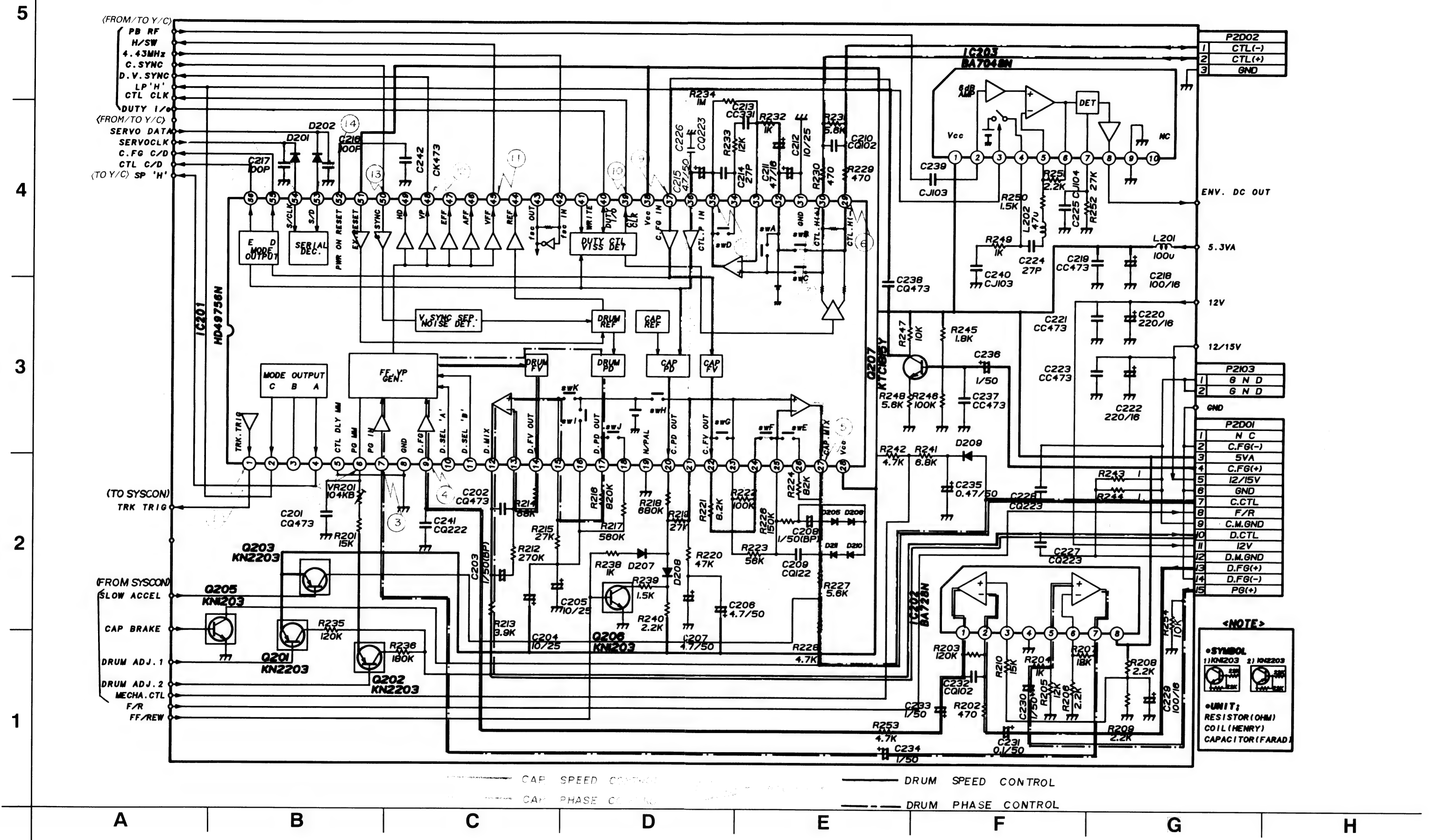
H

CIRCUIT DIAGRAMS

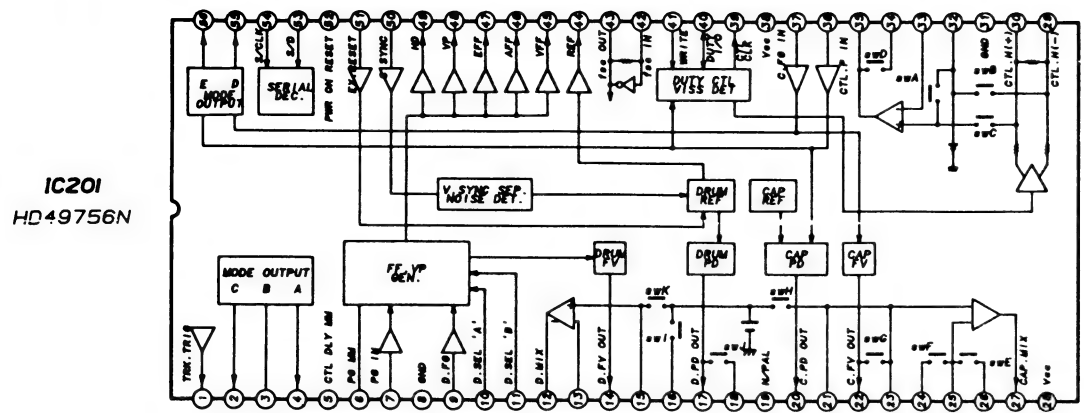
1. Power Circuit Diagram



2. Servo Circuit Diagram



SERVO IC AND TR VOLTAGE SHEET



RECORD MODE	5	2.5	0.8	0.7	5	5	0.4	0	0	2.5	0	2.5	2.6	2.6	2.6	5	5	3.6	5	2.5	2.5	2.5	2.5	2.5	2.5	0	2.7	2.1
PLAYBACK MODE	2.0	2.5	0.8	0.7	5	5	0.4	0	0	2.5	0	2.5	2.6	2.6	2.6	5	5	2.1	5	2.5	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5

PLAYBACK MODE	3.6	0	0	5	0	0	2.2	0	2.7	2.7	2.7	1.3	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	5
RECORD MODE	3.6	0	0	5	0	0.4	2.2	0	2.7	2.7	2.7	1.3	2.5	2.5	2.5	2.5	2.4	0	2.5	2.5	2.5	2.5	2.5	2.5	2.7	2.7	5

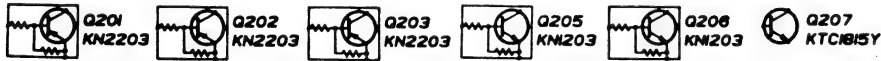
IC202
BA728N

PLAYBACK MODE	2.3	2.2	2.5	0	0	0	0	5
RECORD MODE	2.3	2.2	2.5	0	0	0	0	5

IC203
BA7048N

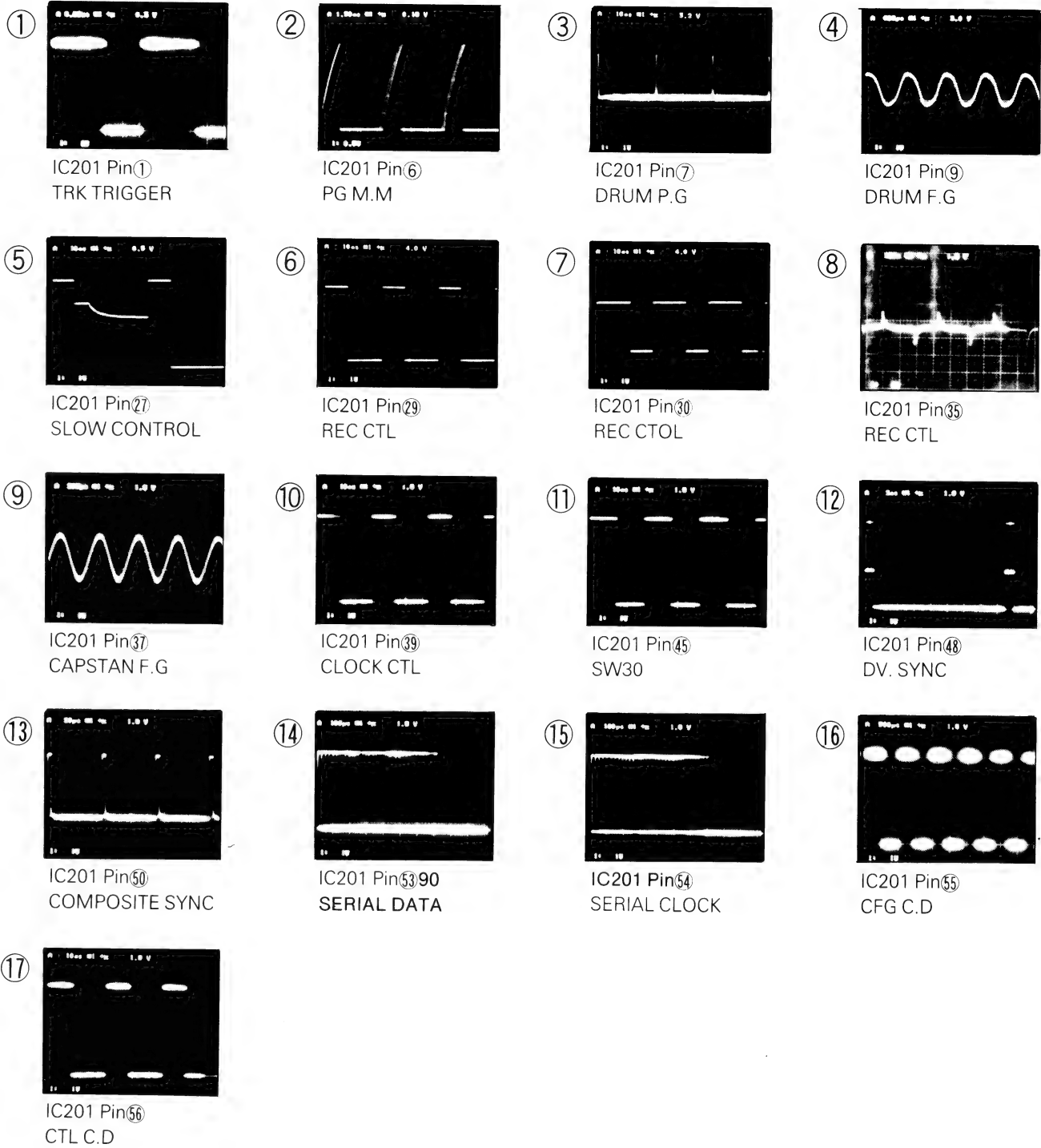
PLAYBACK MODE	5	1.8	5	0	2.4	2.5	2.4	4.5	0	0
RECORD MODE	5	1.8	5	0	0	2.5	0.2	0.2	0	0

Servo TR Voltage Sheet

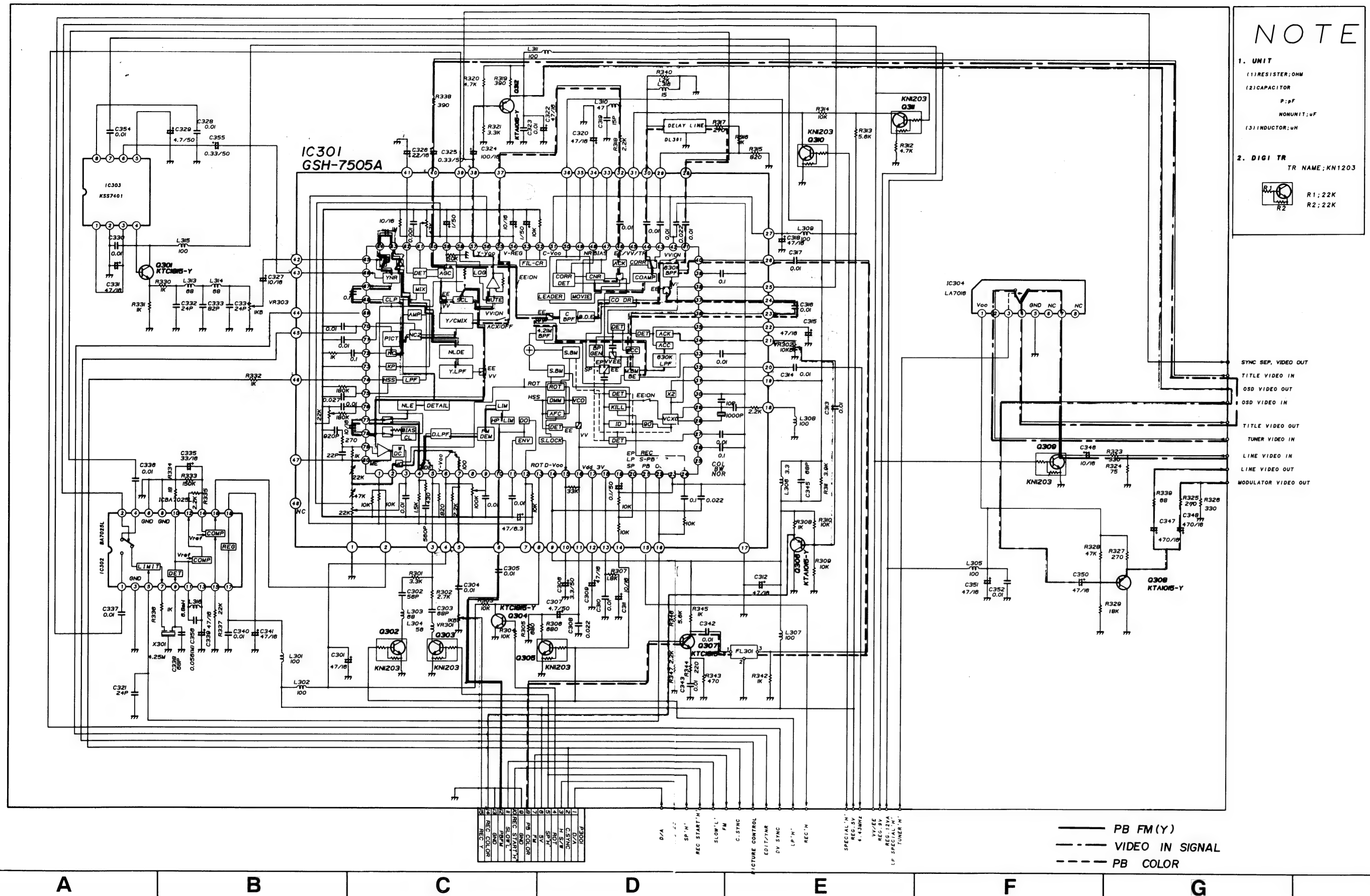


MODE	MODE	Q201	Q202	Q203	Q205	Q206	Q207
EMITTER	PLAYBACK	5	5	5	0	0	3.4
	RECORD	5	5	5	0	0	3.4
BASE	PLAYBACK	5	5	5	0	0	4.1
	RECORD	5	5	5	0	0	4.1
COLLECTOR	PLAYBACK	1.5	1.5	2.7	2.7	5	3.4
	RECORD	1.5	1.5	2.7	2.7	5	3.4

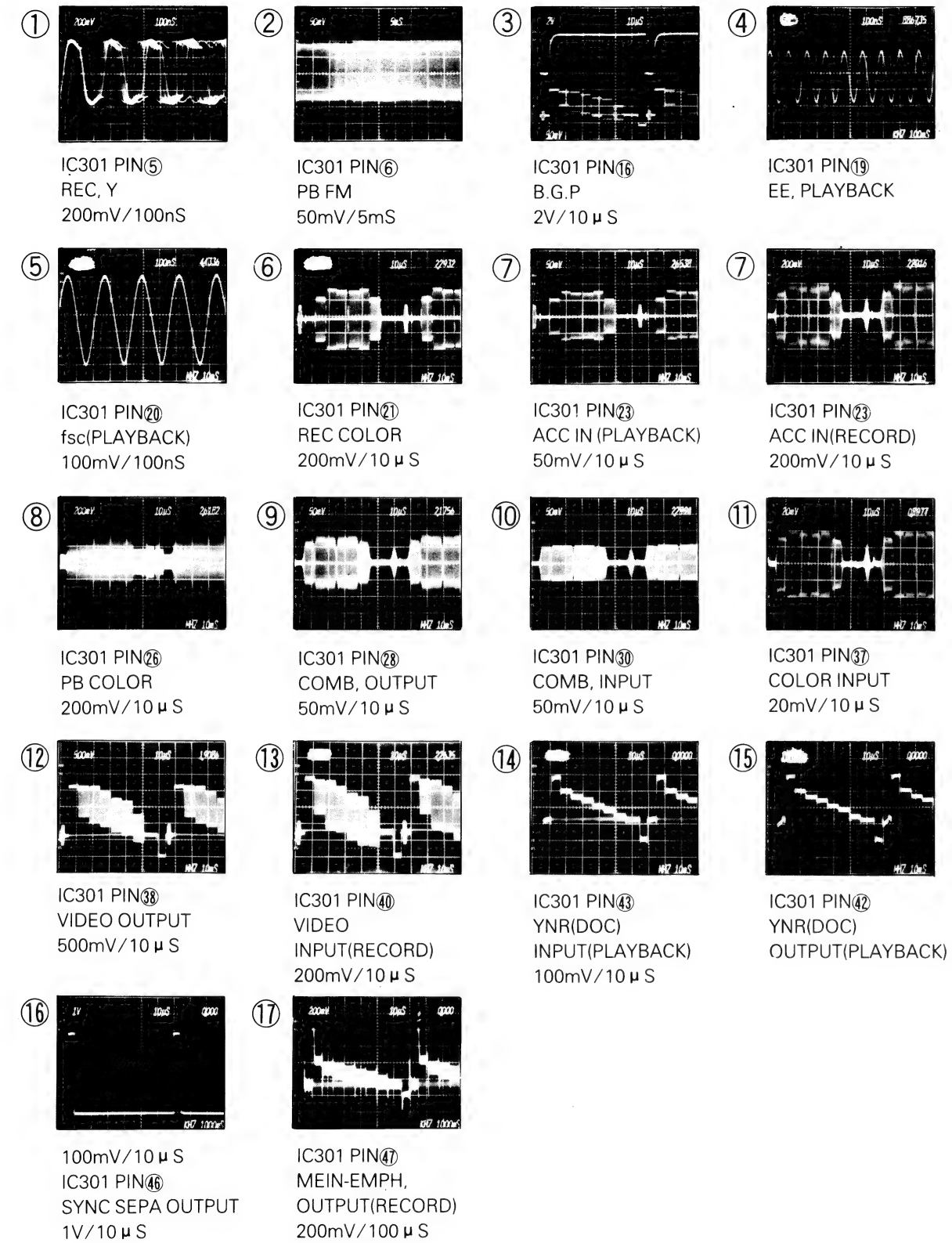
* Servo Oscilloscope Waveform



3. Y/C Circuit Diagram



*** Y/C Waveform**



*** Y/C IC Voltage Sheet(SP mode)**

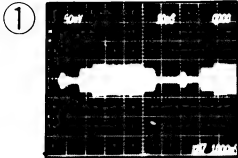
IC NO.	IC301		IC302		IC303		IC304	
Mode Pin No.	REC	PB	REC	PB	REC	PB	REC	PB
1	0	0	3.6	3.6	9.0	9.0	2.0	1.4
2	2.7	2.7	0	4.9	0	0	7.6	0
3	0	1.26	0	0	9.0	9.0	2.5	0
4	4.9	4.9	3.6	3.6	3.3	3.30	0	0
5	3.6	4.0	4.5	4.5	3.2	3.2	7.0	0.9
6	4.0	4.0	0	0	2.4	2.4	0	0
7	4.9	4.7	4.5	4.5	1.7	1.7	7.7	0
8	2.5	2.5	0	0	5.0	5.0	11.7	0
9	5.0	5.0	3.0	3.0				
10	3.2	3.2	0	0				
11	3.2	3.2	3.6	3.5				
12	3.0	3.0	0	0.9				
13	0.5	2.3	3.5	3.5				
14	0	0	0	1.0				
15	5.0	0	0	0				
16	4.5	4.5	2.7	2.7				
17	0	0	5	5				
18	0	0	5	5				
19	5.0	5.0						
20	2.2	2.2						
21	2.2	2.3						
22	2.2	2.2						
23	2.5	2.5						
24	1.8	2.0						
25	1.8	1.8						
26	3.9	3.9						
27	4.9	4.9						
28	0	0						
29	0	0						
30	0	0						
31	5.0	3.0						
32	3.3	3.3						
33	3.5	3.5						
34	2.4	2.4						
35	1.8	3.5						
36	4.9	4.9						
37	3.3	3.3						
38	2.2	2.1						
39	0	0						
40	2.7	2.6						
41	2.0	1.6						
42	3.0	3.0						
43	1.8	1.8						
44	0	0						
45	2.7	2.7						
46	0.4	0.4						
47	2.4	2.6						
48	0	0						

*** Y/C TR Voltage Sheet(SP mode)**

Mode	REC			PLAY		
TR NO	E	C	B	E	C	B
Q301	2.6	9.0	3.3	2.6	9.0	3.3
Q302	0	1.6	0	0	0.1	0
Q303	0	0	4.9	0	0	4.9
Q304	0	2.5	0.3	0	2.5	2.3
Q305						
Q306	3.2	0	2.5	3.2	0	2.5
Q307	0.7	3.5	1.4	0.7	3.5	1.4
Q308	7.0	0	6.3	7.0	0	6.3
Q309	0	7.6	0	0	06	4.9
Q310	0	5	0	0	3.0	0
Q311	0	5.0	0	2.6	2.6	4.9
Q312	5.6	0	5	5.6	0	5

4. Pre-Amp Circuit Diagram

* Pre-Amp Waveform



PRE-AMP TP001
RECORD COLOR
50mV/100µS

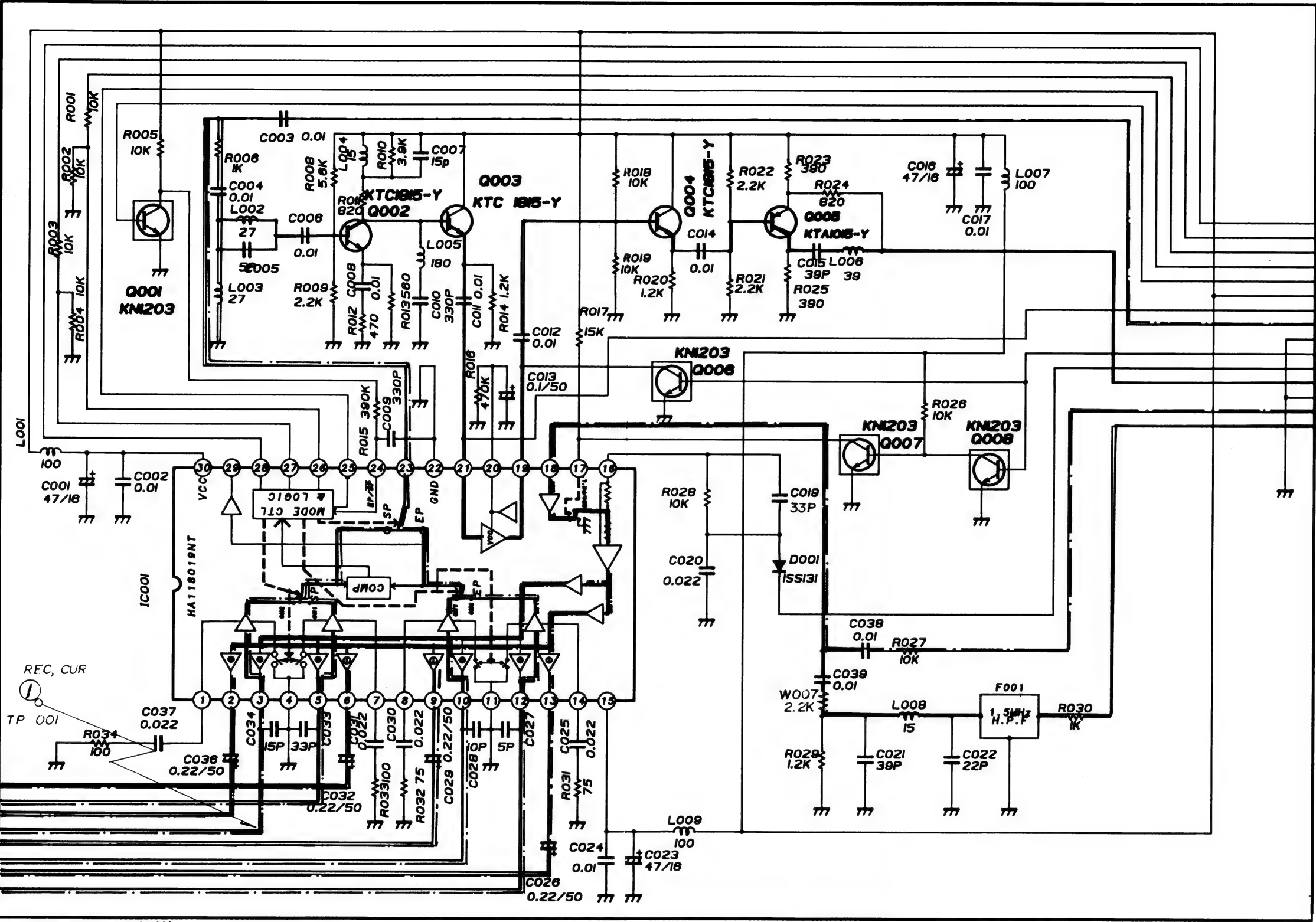


PRE-AMP TP001
RECORD Y
500mV/100µS

* Pre-Amp Voltage Sheet (IC001)

Mode Pin No.	PB	REC
1	2.3	4.2
2	0	2.2
3	0.7	2.2
4	0	0
5	0.7	2.2
6	0	2.2
7	2.2	4.2
8	4.2	4.2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	4.2	4.2
15	5	4.8
16	2.7	2.7
17	0	3.9
18	4.2	4.0
19	2.5	0.7
20	2.2	0.1
21	3.5	3.1
22	0	0
23	3	4.3
24	0.7	-0.7
25	2.3	2.3
26	1.8	1.8
27	0.1	0.1
28	4.3	4.3
29	2	3.9
30	5	5

P0001		
RI REC	1	
RI PLAY	2	
LI REC	3	
LI PLAY	4	
R2 REC	5	
R2 PLAY	6	
L2 REC	7	
L2 PLAY	8	



(FROM/TO Y/C)

P0302	
1	D/A CONHV
2	C.SYNC
3	S/V 25
4	ROT
5	SP 'H'
6	5V
7	FM
8	PB COLOR
9	6 N D
10	REC START'H
11	SLOW'L
12	PB FM
13	6 N D
14	REC COLOR
15	REC Y

— PB (FM) — REC (Y)
— PB COLOR — REC COLOR
○ WAVEFORM

5

32

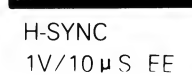
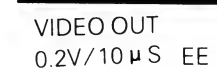
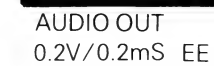
2. THIS VOLTAGE IS CHECKED UNDER AFC ON CONDITION (AFC SWITCH ON POSITION) WITH PRE-SETTING CHANNEL 9.

3. UNIT

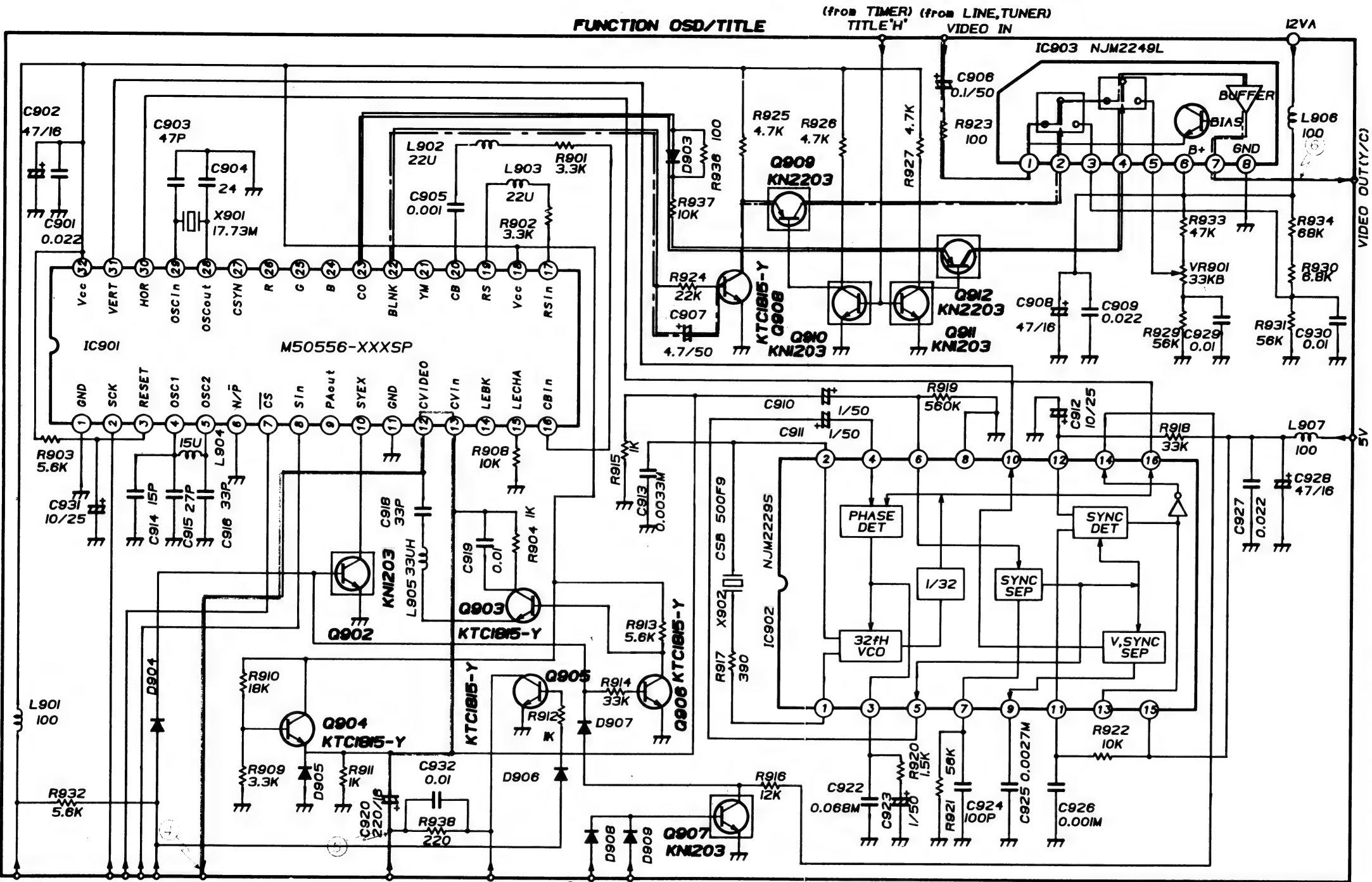
1) RESISTOR: OHM

2) CAPACITOR
M: uF
P: PF

3) INDUCTANCE: uH



8. OSD/Title Circuit Diagram



IC & TR PIN VOLTAGE

IC 901 M50554-XXXSP			
PIN	VOLTAGE	PIN	VOLTAGE
1	0	17	0.80
2	0.89	18	5.0
3	4.99	19	0.8
4	2.37	20	0
5	2.2	21	0
6	0	22	4.89
7	5.03	23	0
8	5.0	24	0
9	0	25	0
10	4.92	26	0
11	0	27	4.53
12	0.72	28	5.0
13	0.72	29	2.28
14	0.60	30	2.26
15	2.0	31	0.35
16	0.6	32	0

IC 902 NJM2229S			
PIN	VOLTAGE	PIN	VOLTAGE
1	2.85	9	0.16
2	2.10	10	0
3	2.16	11	0.55
4	0.13	12	1.9
5	0.73	13	4.32
6	3.47	14	0
7	2.62	15	4.97
8	0	16	0.37

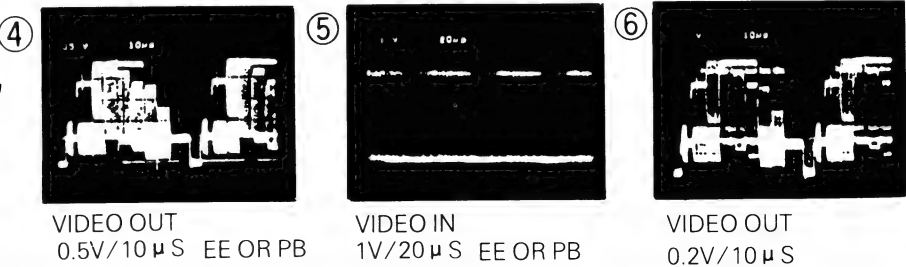
IC 903 NJM2249L			
PIN	VOLTAGE	PIN	VOLTAGE
1	5.01	5	5.55
2	0	6	11.74
3	5.08	7	4.30
4	0	8	0

TR	E	C	B
Q901			
Q902	0	4.92	0.39
Q903	1.29	1.29	1.97
Q904	0.72	5.0	0.73
Q905	0	5.67	0
Q906	0	1.97	0.33
Q907	2.88	0	0
Q908	0	0	0.63
Q909	5	0	5.03
Q910	0	5.02	0
Q911	0	4.7	0
Q912	1.64	0	4.7

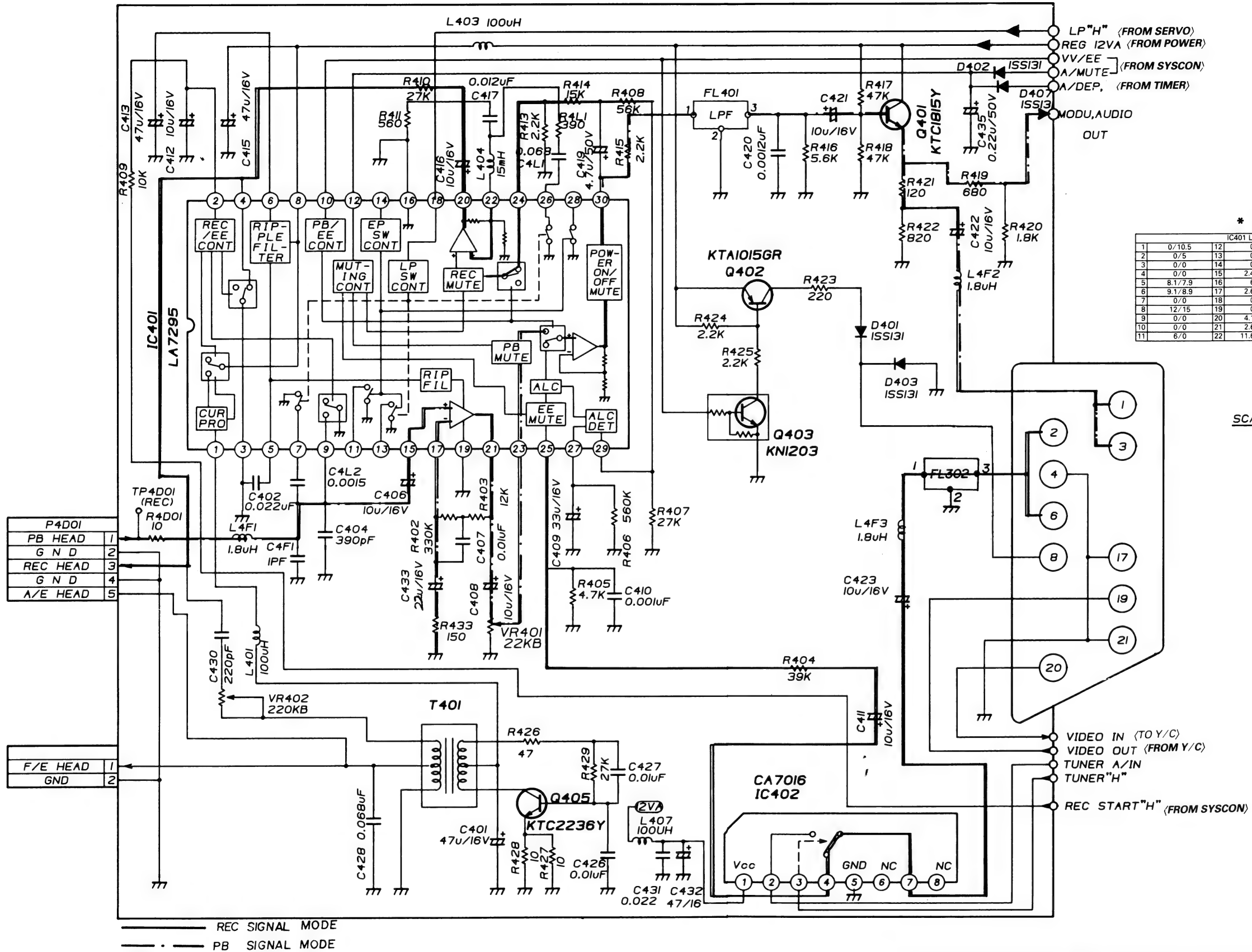
...UNIT...
1)RESISTOR;OHM
2)CAPACITOR
P:PF
NONUNIT;UF
3)INDUCTOR;UH
4)DIODE;ISSI3I

- CHARACTER SIGNAL
- - - BLANK SIGNAL
- EE OR PB VIDEO SIGNAL
- CHARACTER BE RECORD WAVEFROM TO VIDEO/TUNER/LINE VIDEO AND TITLE MODE WAVEFORM

* OSD/Title Waveform



5. Audio Circuit Diagram



* PB/REC Mode

IC401 LA7295			
1	0/10.5	12	0/0
2	0/5	13	0/0
3	0/0	14	0/0
4	0/0	15	2.4/2.3
5	8.1/7.9	16	6/0
6	9.1/8.9	17	2.6/2.4
7	0/0	18	0/0
8	12/15	19	0/0
9	0/0	20	4.1/3.5
10	0/0	21	2.6/2.4
11	6/0	22	11.6/11.6

- SCART PIN SIGNAL NAME
- 1) 3), AUDIO OUT
 - 2) 6), AUDIO IN
 - 8), PB 12V
 - 20), VIDEO IN
 - 19), VIDEO OUT
 - 4) 17) 21), GROUND

5
4
3
2
1



Mode/ Pin No	PB	REC
1	0	0
2	0.6	0.6
3	0.8	0.8
4	0.3	0.3
5	1.7	1.7
6	1.7	1.7
7	11.6	11.6
8	11.6	11.6
9	0.8	0.8
10	0.6	0.6

	SW 630 EDIT	WVED TIN WIRE
4 MD	0	X
2 MD	X	0

• NOTE •

FILE ; D:DITRON - P
DIODE ; D101(1N4003), ALL 1SS131

	IC 801 TIMER u-COM
NOR	M36102M5-1315P
WITH VPT	M36102SM-XXXSP

SECTION 4

MECHANISM

CONTENTS

FRONT LOADING MECHANISM DISASSEMBLY

- Front Loading Mechanism Parts Location 4-3
- 1. Front Loading Mechanism Assembly ... 4-4
- 2. PCB Assembly 4-5
 - 2-1. PCB Assembly(R)..... 4-5
 - 2-2. PCB Assembly(L) 4-5
- 3. Top Plate 4-5
- 4. Carrier Bracket Assembly..... 4-6
 - 4-1. Carrier Bracket Assembly 4-6
 - 4-2. Cassette Opener 4-6
 - 4-3. Lid Opener 4-6
 - 4-4. Detect Lever and Detect Spring ... 4-6
 - 4-5. Bracket Support 4-7
 - 4-6. Carrier Bracket Assembly 4-7
- 5. Cassette Guide 4-7
- 6. Side Bracket Assembly 4-8
- 7. Bracket Assembly(L),(R) 4-8
- 8. Door Opener 4-8
- 9. Drive Gear Assembly 4-8
 - 9-1. Drive Gear Assembly 4-8
 - 9-2. Cushion Spring..... 4-8
 - 9-3. Cap-D 4-8
 - 9-4. Spring C.C 4-8
 - 9-5. Gear C 4-8
 - 9-6. Gear R 4-9
 - 9-7. Spring R 4-9
 - 9-8. Gear L 4-9
 - 9-9. Spring L..... 4-9
 - 9-10. Switch Lever..... 4-9

DECK MECHANISM DISASSEMBLY

- Deck Mechanism Parts Location 4-10
- 1. Auto Head Cleaner Assembly..... 4-11
- 2. Drum Assembly and Drum Base| 4-11
- 3. Upper and Lower Drum Assembly ... 4-11
- 4. A/C Head Assembly 4-12
- 5. Pinch Lever Assembly 4-12
- 6. Loading Motor Assembly..... 4-12
- 7. Take Up Lever 4-13
- 8. Take Up Arm Assembly 4-13
- 9. P4 Assembly 4-13
- 10. Pinch Gear 4-14
- 11. Full Erase Head Assembly 4-14
- 12. P1 Assembly 4-14
- 13. Tension Arm Assembly 4-14
- 14. Supply Soft/Supply Main Take-up
Soft/Take-up Main Brake Assembly. 4-15
- 15. Bracket F/R Assembly..... 4-15

- 16. Supply Reel Assembly 4-15
- 17. Idler Gear(A),(B) 4-16
- 18. Pulley Gear Assembly..... 4-16
- 19. Bracket Bottom Assembly 4-16
- 20. Junction PCB Assembly 4-16
- 21. Capstan Motor/Brake Assembly..... 4-17
- 22. Function Plate 4-17
- 23. Ratchet Lever Assembly..... 4-18
- 24. Cam Gear, Rack T, Rack F.L 4-18
- 25. PC Gear 4-19
- 26. P2 and P3 Slant Assembly 4-19
- 27. Loading Gear Assembly..... 4-19
- 28. Tension Lever Assembly..... 4-20
- 29. Clutch Gear Assembly 4-20
- 30. Take Up Reel Assembly 4-20

MECHANISM ADJUSTMENT

- Tools and Fixtures for Deck 4-21
- 1. Mechanism State Switch
(Mode Switch) Check..... 4-22
- 2. Preparation for Adjustment
(To set VCR to the Loading State
without inserting a cassette) 4-23
- 3. Reel Table Height Adjustment..... 4-23
- 4. Tension post position and Tension
Adjustment 4-24
- 5. Checking Torque..... 4-25
- 6. Guide Post Height Adjustment..... 4-26
- 7. Guide Roller Height Adjustment 4-27
- 8. Audio Control(A/C) Head
Adjustment 4-29
- 9. X-Value Adjustment 4-30
- 10. Adjustment after Replacing Drum
Assembly..... 4-31
- 11. Maintenance/Inspection Procedure 4-32

MECHANISM TROUBLESHOOTING GUIDE

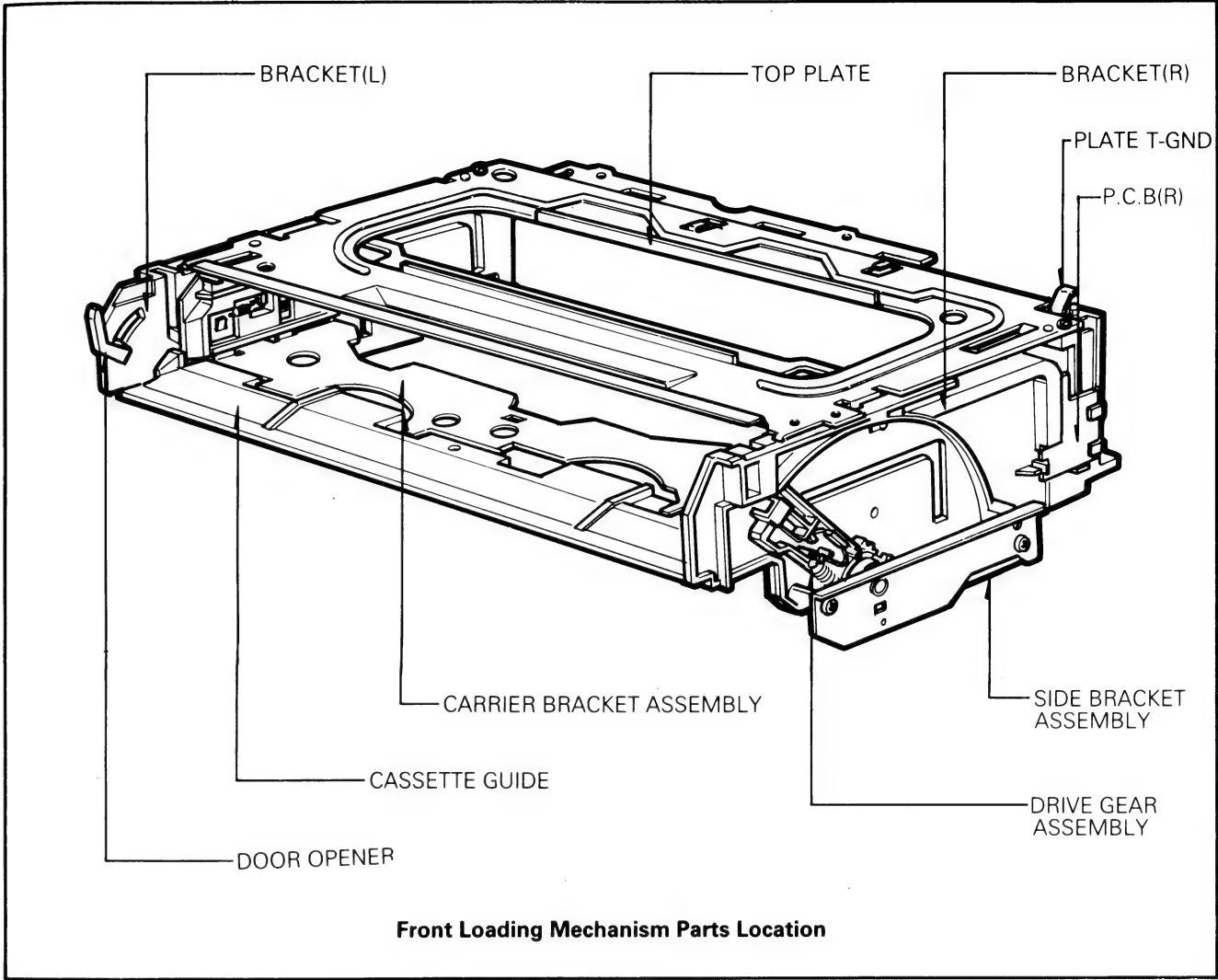
- 1. Deck Mechanism..... 4-35
- 2. Front Loading Mechanism 4-39

EXPLODED VIEW

- 1. Moving Mechanism Section(I) 4-41
- 2. Moving Mechanism Section(II)..... 4-43
- 3. Front Loading Mechanism Section.... 4-45

FRONT LOADING MECHANISM DISASSEMBLY

• Front Loading Mechanism Parts Location



- | | |
|--|--------------------------|
| 1. Component list below will be discribed as if the top and bottom covers and the front panel have already been removed. | 5. Cassette Guide |
| 2. P.C.B Assembly | 6. Side Bracket Assembly |
| 3. Top Plate | 7. Bracket(L), (R) |
| 4. Carrier Bracket Assembly | 8. Door Opener |
| | 9. Drive Gear Assembly |

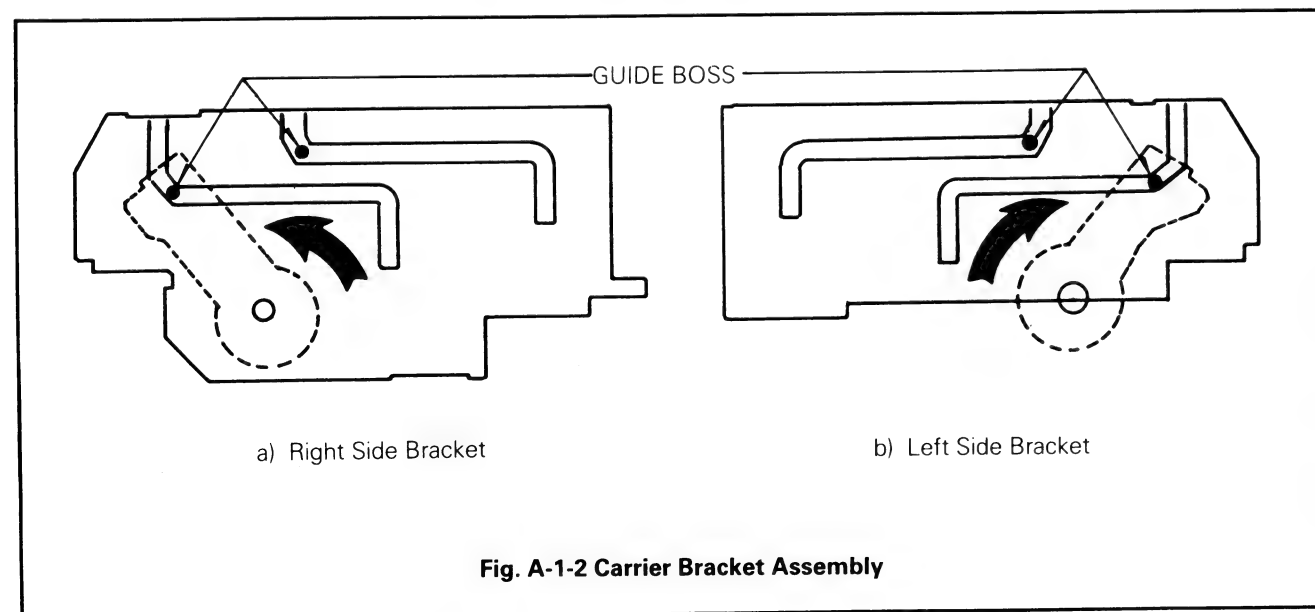
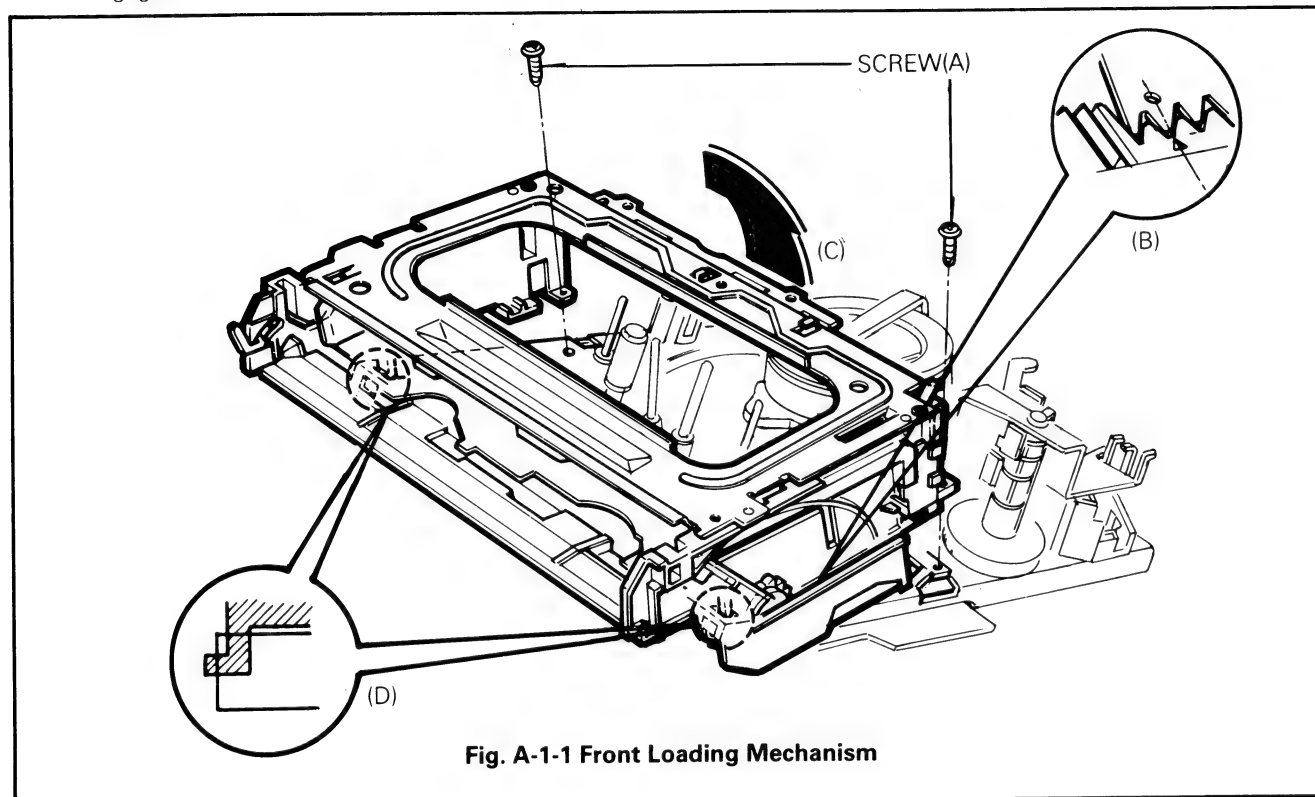
1. Front Loading Mechanism Assembly (Fig. A-1-1)

- 1) Remove the Top and Bottom Covers and the Front panel.
- 2) Unplug the connector.
- 3) Remove two screws(A).
- 4) Lift up the Front Loading Mechanism in the direction of arrow(C).

* NOTE

- 1) When disassembling and reassembling
① Give special attention to removal, because two tabs(D) are engaged.

- ② Make sure that Bosses of Bracket(L),(R) are properly engaged in the holes of the chassis.
- ③ To reassemble Front Loading Mechanism, the Drive Gear Assembly should be turned in a counterclockwise as shown in Fig. A-1-2 so that the Rack Gear N.D of Front Loading Mechanism Assembly is meshed into Rack Gear F.L of Deck Mechanism Assembly correctly as shown in Fig. A-1-1.(B).



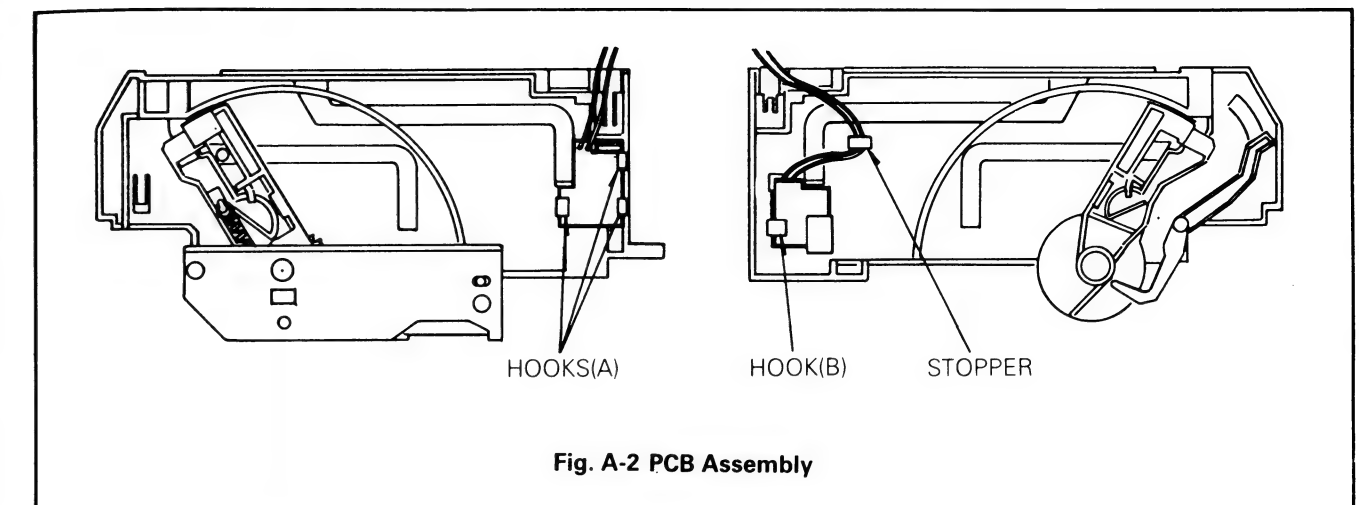
2. PCB(Printed Circuit Board) Assembly

2-1. P.C.B Assembly(R)(Fig. A-2)

- 1) Remove the PCB Assembly(R) by pushing three Hooks (A) outward.
- 2) Release the Lead wire from stoppers.

2-2. PCB Assembly(L).(Fig. A-2)

- 1) Remove the PCB Assembly(L) by pushing the Hook(B) outward.
- 2) Release the Lead Wire from stoppers.

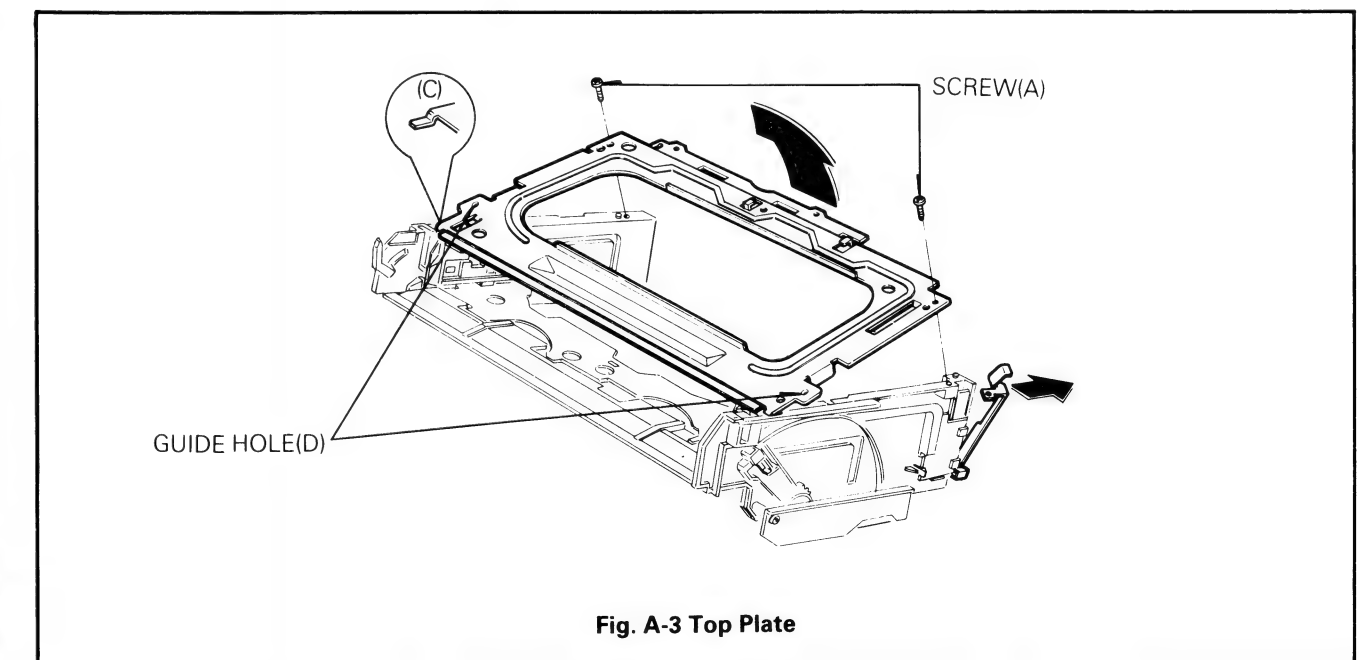


3. Top Plate(Fig. A-3)

- 1) Remove two screws(A).
- 2) Push the upper part of Top plate Ground and then lift up the Top Plate.

* NOTE

- 1) When reassembling, be certain that the tabs(C) of Top Plate is in both Bracket(L),(R).
- ① Then align the guide holes(D) of Top Plate with Bosses of side Bracket(L),(R).



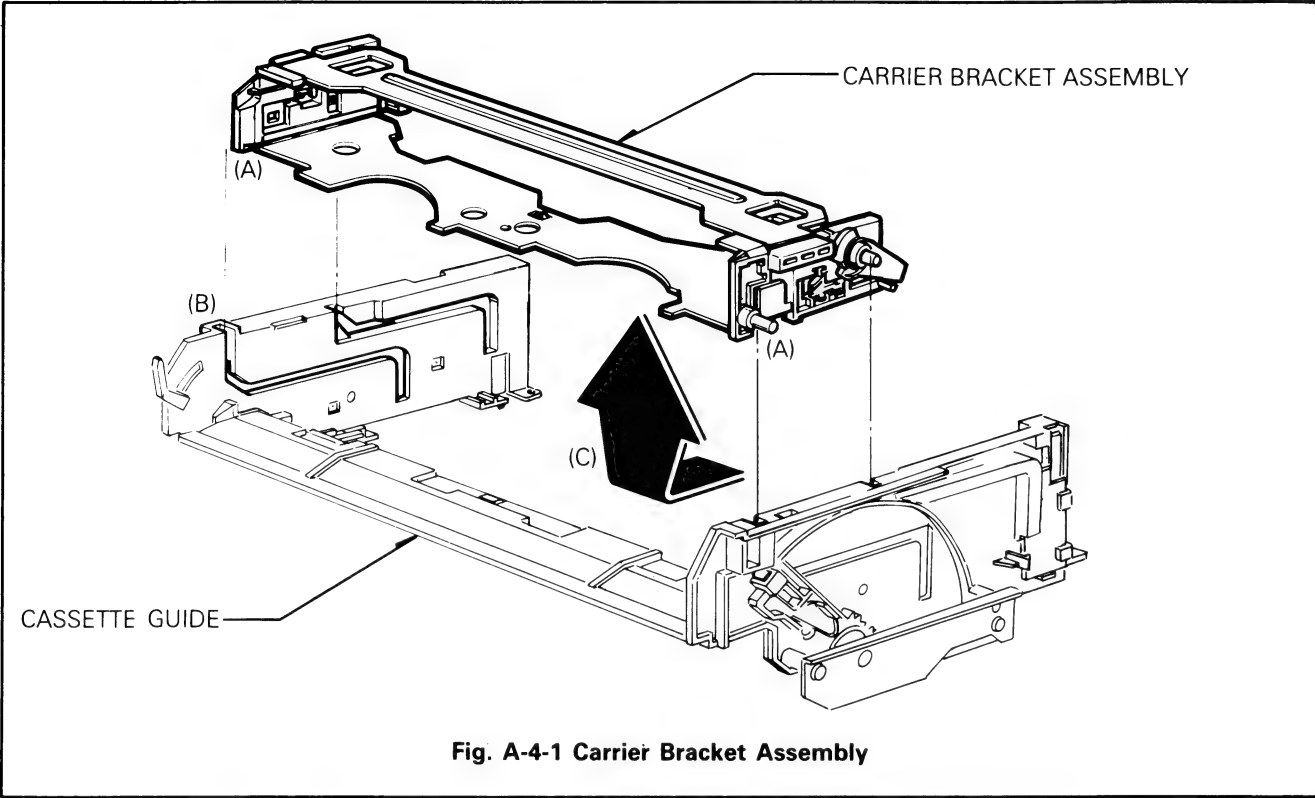
4. Carrier Bracket Assembly

4-1. Carrier Bracket Assembly(Fig. A-4-1)

- 1) Remove the Carrier Bracket Assembly by moving it in the direction of arrow(C).

* NOTE

- 1) When reassembling, be sure that parts(A) of Carrier Bracket Assembly are seated in parts(B) of Bracket(L),(R).



4-2. Cassette Opener(Fig. A-4-2)

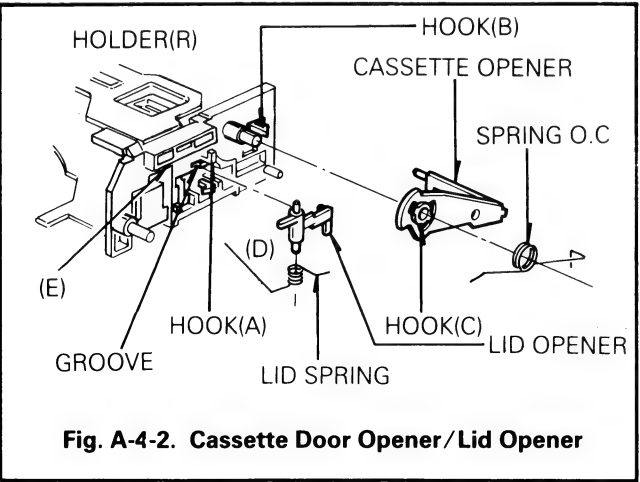
- 1) Release the spring O.C from the Hook(A) and then release it from Hook(C) of cassette opener.
- 2) Remove the cassette opener by releasing the Hook(B) from the Holder(R).

4-3. Lid Opener(Fig. A-4-2)

- 1) Remove the lid opener by pushing it outward.

* NOTE

- 1) When reassembling, seat the upper part of the lid opener in the grooved of Holder(R) and push it inward.

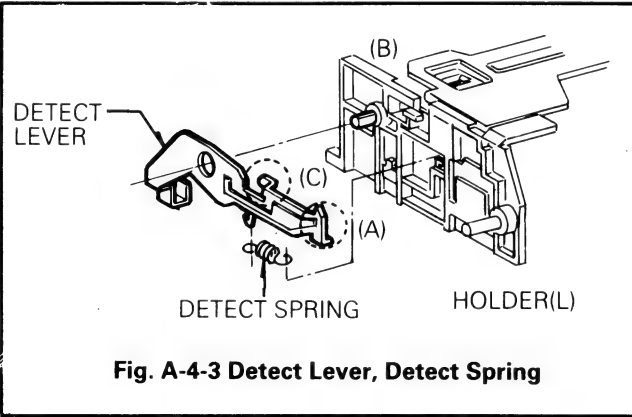


4-4. Detect Lever and Detect Spring

- 1) Remove the spring detect.
- 2) Lower the side(A) of Detect Lever and then remove the Detect Lever by pushing it outward.

* NOTE

- 1) When reassembling, make sure that the part(C) of Detect Lever set in the part(B) of Holder(R).

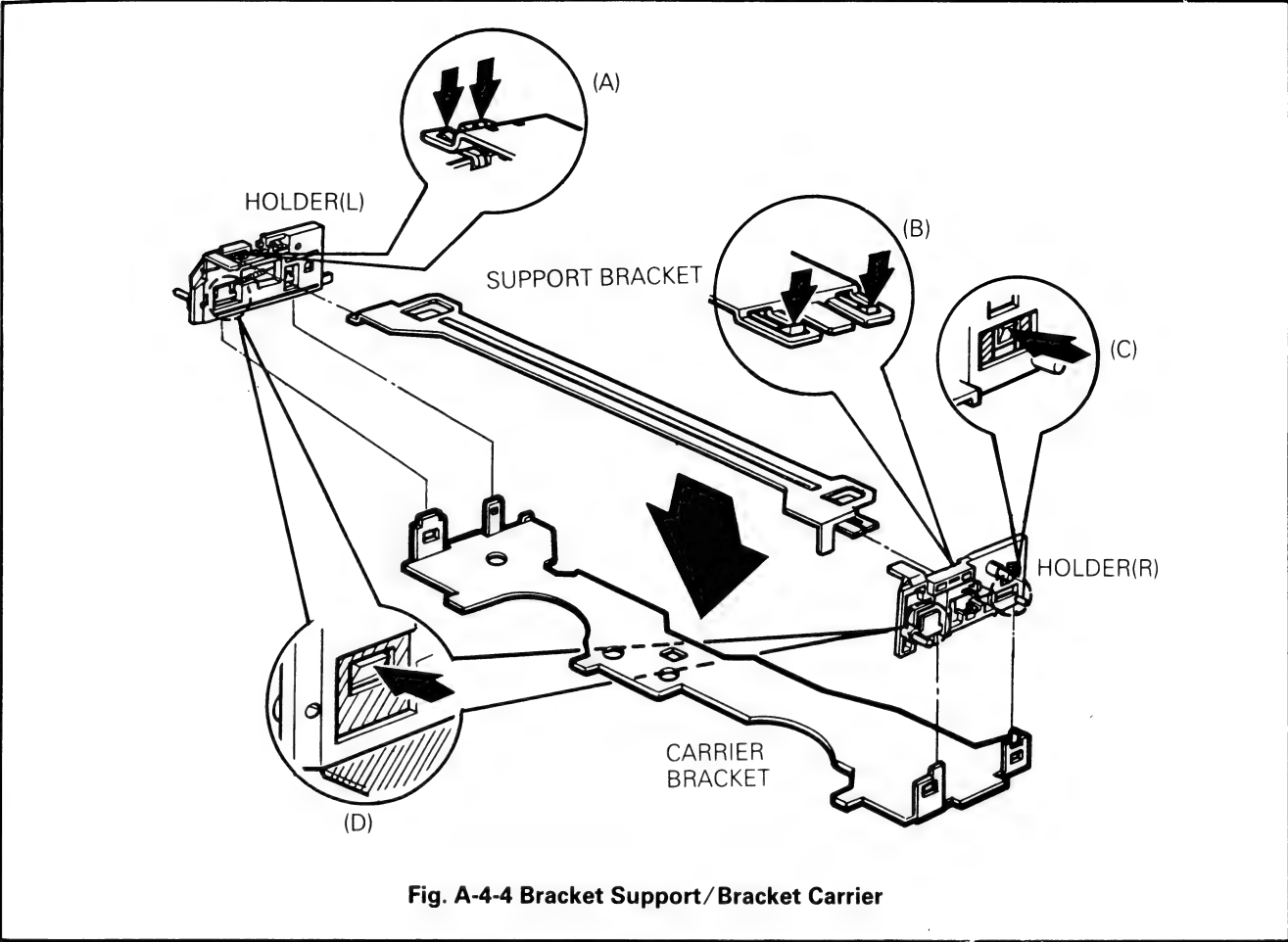


4-5. Bracket Support (Fig. A-4-4)

- 1) Take the Support Bracket out by releasing hooks(A),(B).

* NOTE

- 1) When disassembling and reassembling, be careful because heavy force can damage the hooks.



4-6. Carrier Bracket Assembly(Fig. A-4-4)

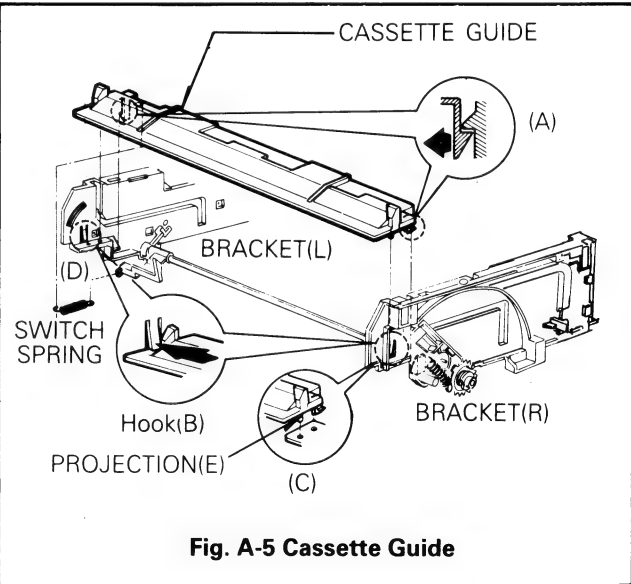
- 1) Remove the Carrier Bracket by releasing hooks(C),(D).

5. Cassette Guide(Fig. A-5)

- 1) Remove the Switch Spring with the Front Loading Mechanism Assembly turned over.
- 2) Push two hooks(B) outward.
- 3) Remove the Cassette Guide by pushing two hooks(A) outward(if one is removed, the other will be easy to remove)

* NOTE

- 1) When reassembling
- ① Seat projections(E) of Cassette Guide in holes of Bracket Assembly(L),(R) and then engage the Hook(A).
- ② After finishing previous step, fix the Cassette Guide to the Bracket Assembly(L),(R) by pushing two hooks(B) inward.

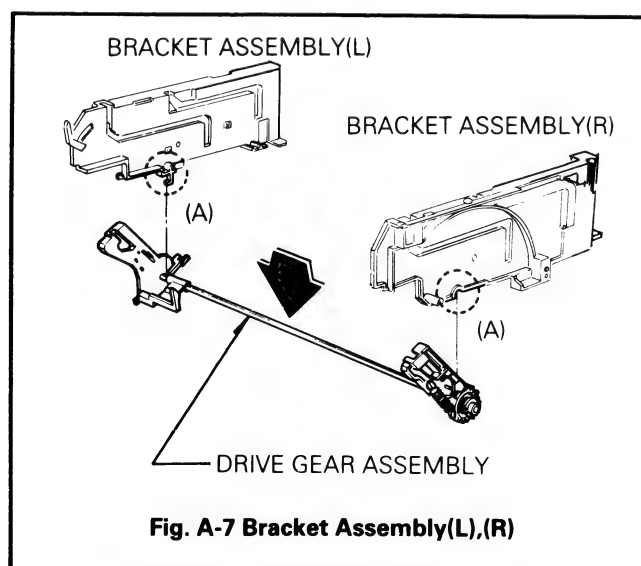
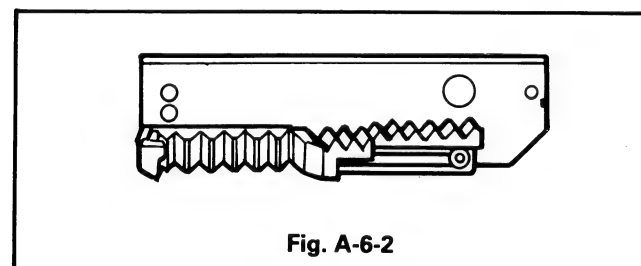
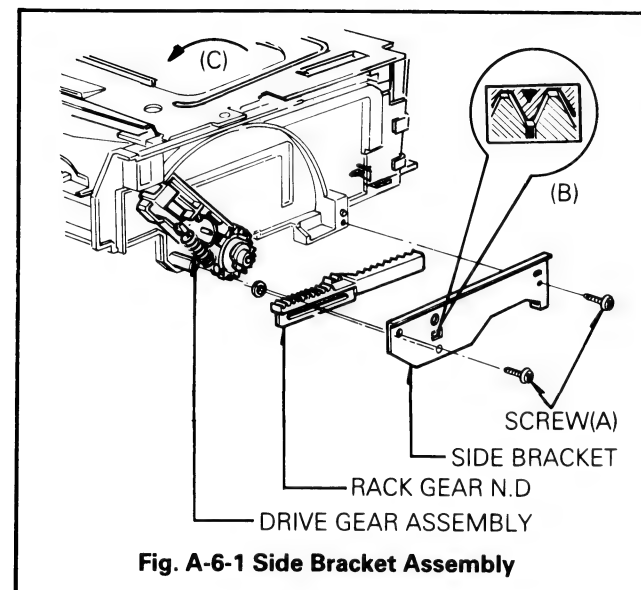


6. Side Bracket Assembly(Fig. A-6-1)

- 1) Remove two screws(A) and then remove the Side Bracket Assembly and the Rack Gear N.D.

* NOTE

- 1) When reassembling
 - ① Turn the Drive Gear Assembly in the direction of arrow (C).
 - ② Reassemble the Rack Gear N.D. to the Side Bracket Assembly, as shown in Fig. A-6-2, and then reassemble



it to the Bracket Assembly(L), This time the Assembling Figure should be the same as(B) at the rectangular hole of Bracket Side.

7. Bracket Assembly(L),(R)(Fig. A-7)

- 1) Separate the Bracket Assembly(L),(R) from the Gear Assembly Drive.

* NOTE

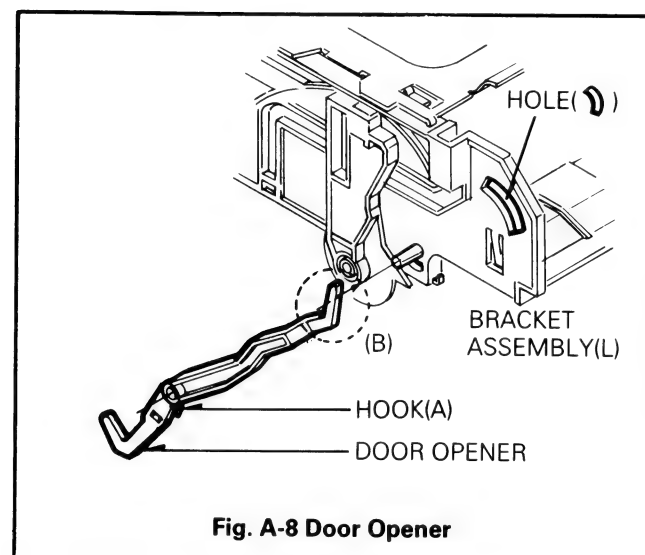
- 1) When reassembling, seat the shaft in the part(A) of Bracket Assembly(L),(R).

8. Door Opener(Fig. A-8)

- 1) Remove the Door Opener by pushing Hook(A) outward.

* NOTE

- 1) When reassembling, seat the part(B) of Door Opener in the hole () of Bracket(L).



9. Drive Gear Assembly

9-1. Drive Gear Assembly(Fig. A-9-1)

- 1) Remove the Drive Gear Assembly from the Bracket Assembly(L),(R).

9-2. Cushion Spring(Fig. A-9-1)

- 1) Remove the cushion spring from the Gear R.

9-3. Cap-D(Fig. A-9-1)

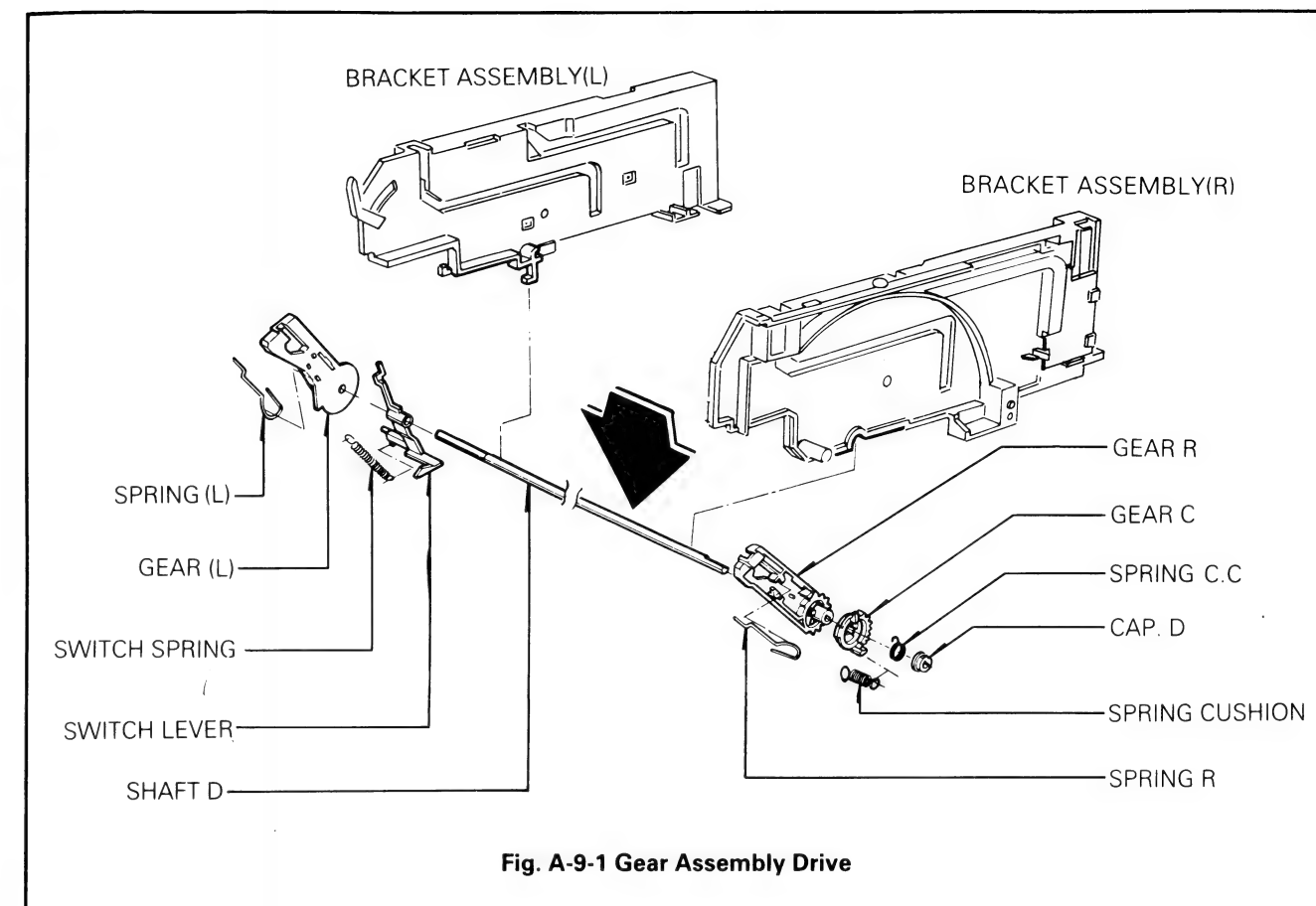
- 1) Remove the Cap-D by lifting it up.

9-4. Spring C.C(Fig. A-9-1)

- 1) Remove the Spring C.C from the Gear R.

9-5. Gear C(Fig. A-9-1)

- 1) Remove the Gear C by lifting up when the projection of Gear C is aligned with the hole of Gear R while rotating the Gear C in the counterclockwise direction.



* NOTE

- 1) When reassembling, seat the projections of Gear R in the holes of Gear C when the projection of Gear R is aligned with the hole of Gear C, and then keep the Gear C turned in the clockwise direction.

9-6. Gear R(Fig. A-9-1)

- 1) Lift up the Gear R from the Shaft.

9-7. Spring R(Fig. A-9-2)

- 1) Remove the Spring R by releasing Hooks.

* NOTE

- 1) When reassembling, be certain Spring R in the part(A) of Gear R.

9-8. Gear L(Fig. A-9-1)

- 1) Remove the Gear L from the shaft.

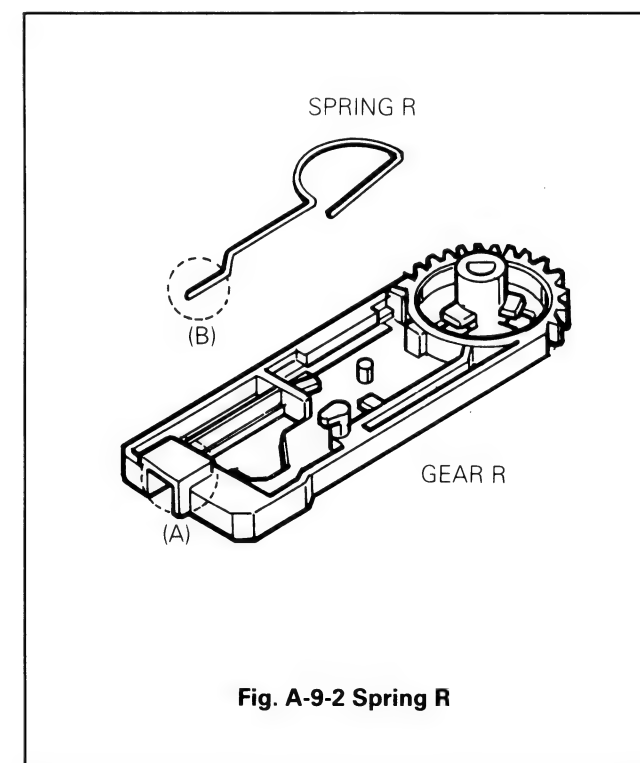
9-9. Spring L (Fig. A-9-2)

- 1) Remove the Spring L by releasing Hooks from the Gear L.

* NOTE:(Refer to the Spring R Section)

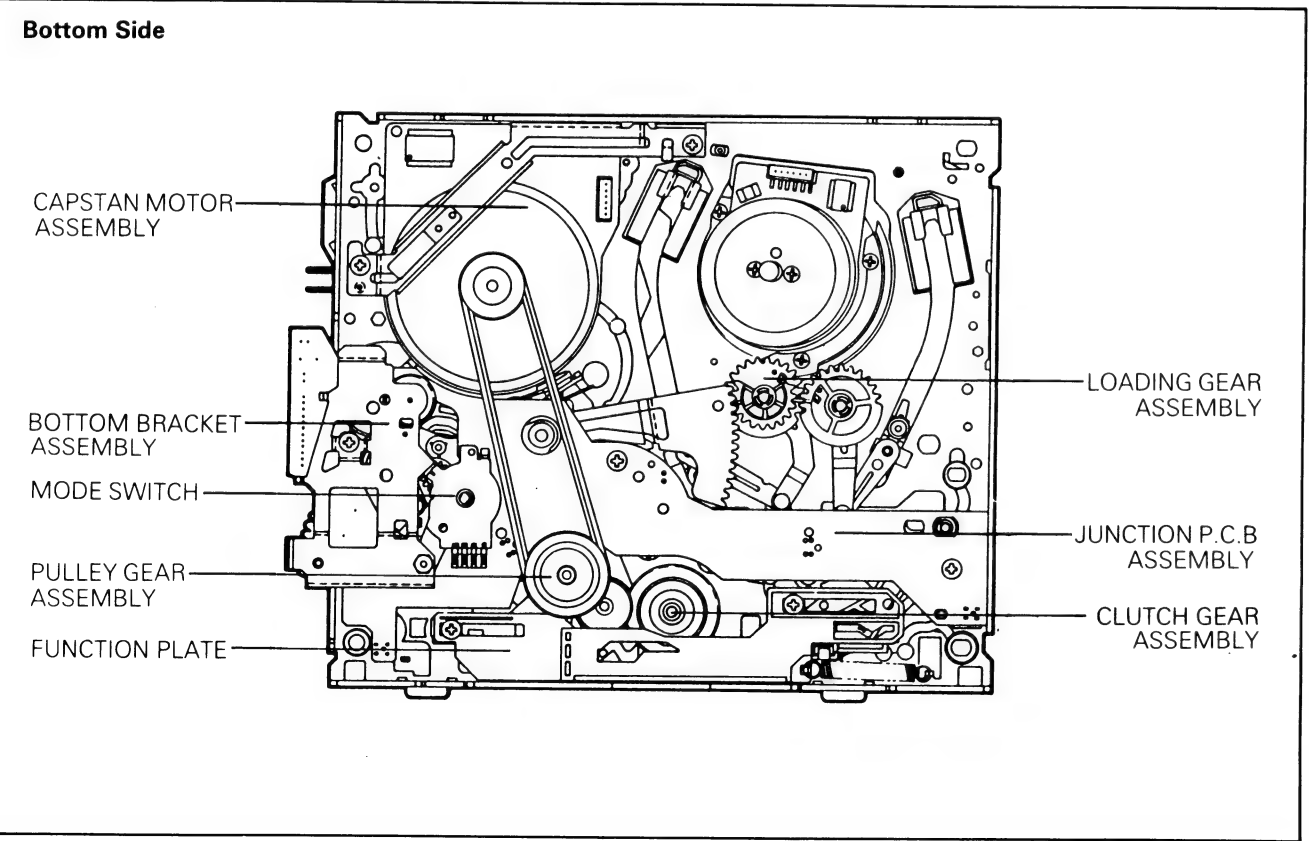
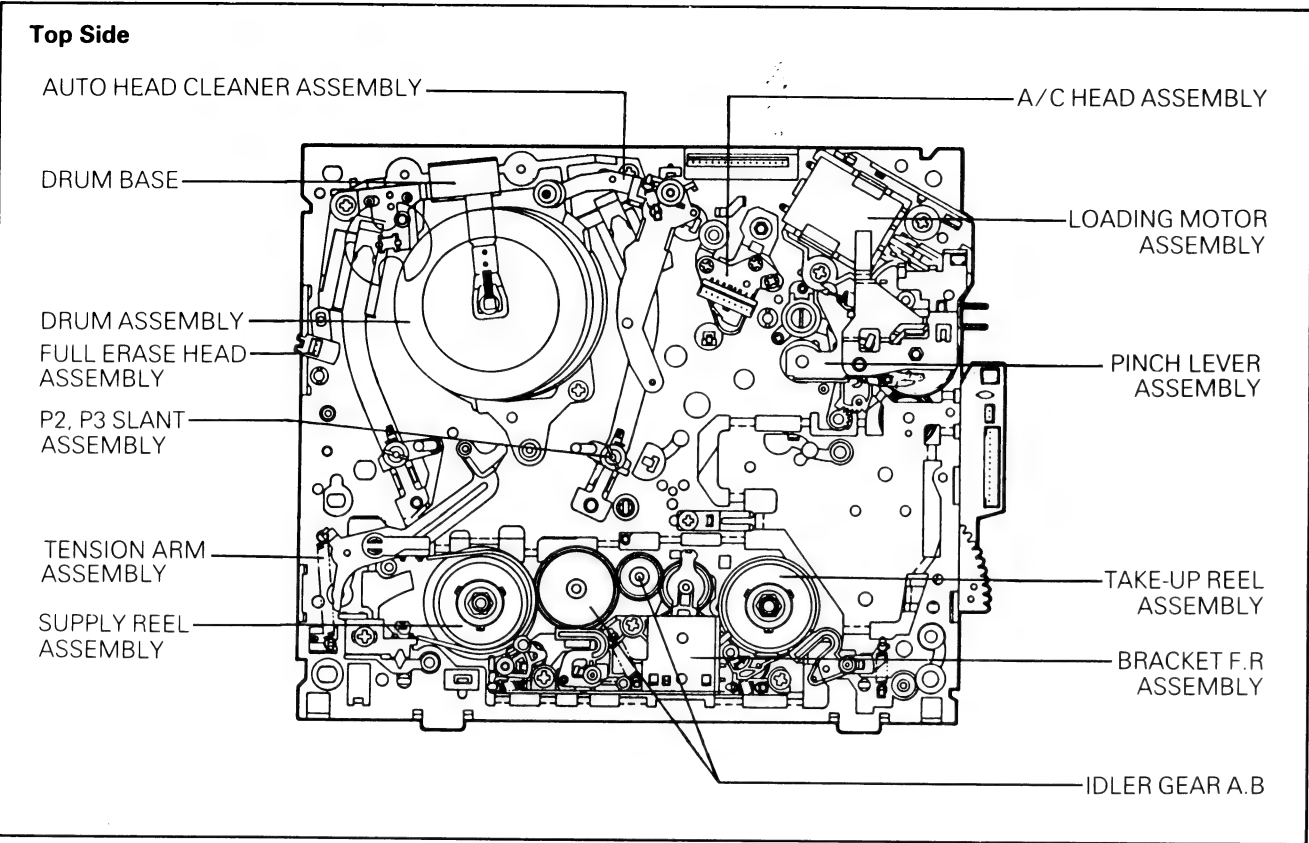
9-10. Switch Lever(Fig. A-9-1)

- 1) Remove the Switch Lever from the shaft.



DECK MECHANISM DISASSEMBLY

• Deck Mechanism Parts Location

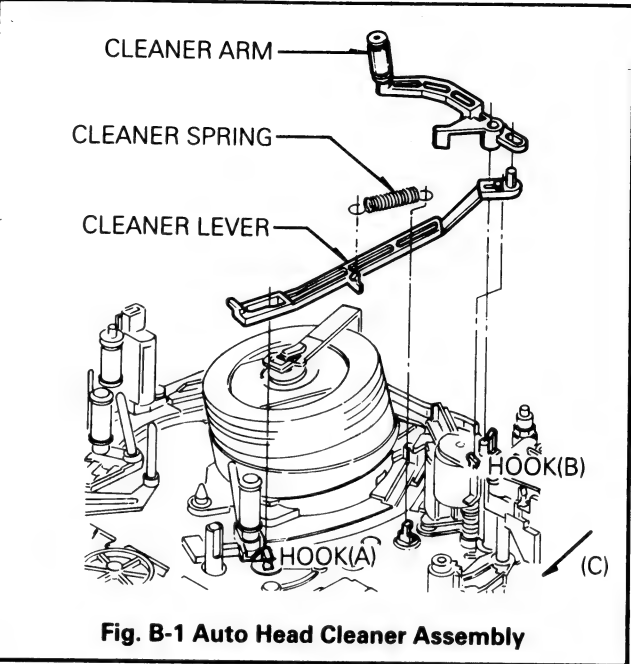


1. Auto Head Cleaner Assembly(Fig. B-1)

- 1) Remove the Cleaner Spring.
- 2) Remove the Cleaner Arm by pushing Hook(B) inward and then remove Cleaner Lever by pushing it in the direction of arrow(C).

* NOTE

- 1) When reassembling, do not touch the Video Head Tip with fingers or tools.



2. Drum Assembly and Drum Base(Fig. B-2)

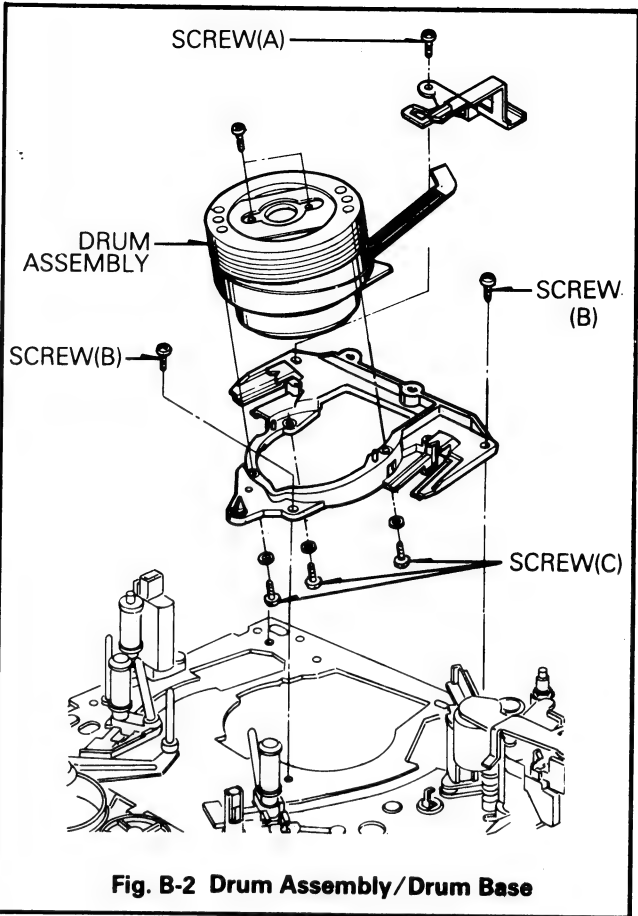
- 1) Remove the Auto Head Cleaner Assembly.
- 2) Unplug the connector with the Deck Mechanism Assembly turned over.
- 3) Loosen the screw(A) and then lift up the Drum Brush.
- 4) Remove two screws(B) and then lift up the Drum Assembly and Drum Base from the Deck Mechanism Assembly.
- 5) Separate the Drum Assembly from the Drum Base by Loosening three screws(C) on the back of Drum Base.

* NOTE

- 1) When disassembling and reassembling
 - ① Do not touch the Video Head tip with fingers or tools. (Give special attention to disassembling and reassembling of Auto Head Cleaner Assembly)
 - ② After reinstalling the Drum Brush, the Drum Brush should be aligned with the center of vertical axis of Drum Assembly.
 - ③ After completing the reassembly, adjust the transportation system and the Servo P.G.

3. Upper and Lower Drum Assembly (Fig. B-3)

- 1) Remove the Drum Assembly and Drum Base from the

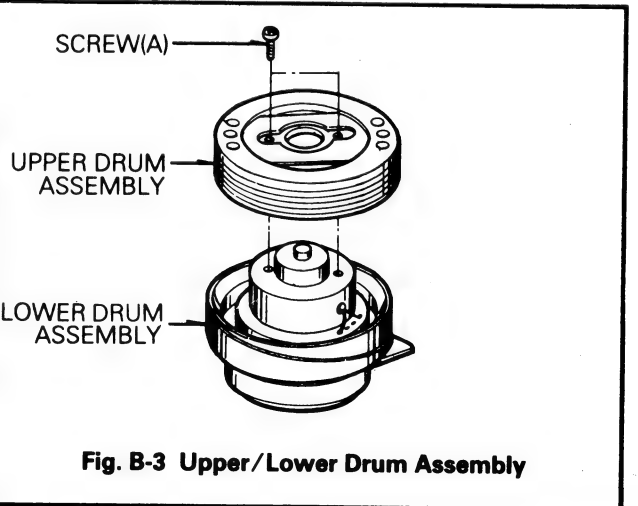


Deck Mechanism Assembly.

- 2) Separate the Drum Assembly from the Drum Base.
- 3) Remove two screws(A).
- 4) Separate the upper Drum Assembly from the Lower Drum Assembly.

* NOTE

- 1) When disassembling and reassembling
 - ① Do not touch the Video Head Tip with fingers or tools.
 - ② Make sure that the color(white) marked on the P.C.B of the upper Drum should coincide with the color(Green) marked on the Flange Assembly.



4. A/C(Audio/Control) Head Assembly (Fig.B-4)

- 1) Unplug the connector
- 2) Remove the Nut(A), and then lift up the A/C Head Assembly.
- 3) Remove the Azimuth Adjusting Screw.
- 4) Remove two screws(B),(D) and then separate the A/C Head Assembly from the Base A/C Head Assembly.

* NOTE

- 1) When disassembling
 - ① First of all, release the spring A/C.
 - ② Do not touch the A/C Head Tip with fingers or tools.
 - ③ After reinstalling the Audio Control Head Assembly, adjust the Tilt, Azimuth and Height of A/C Head.

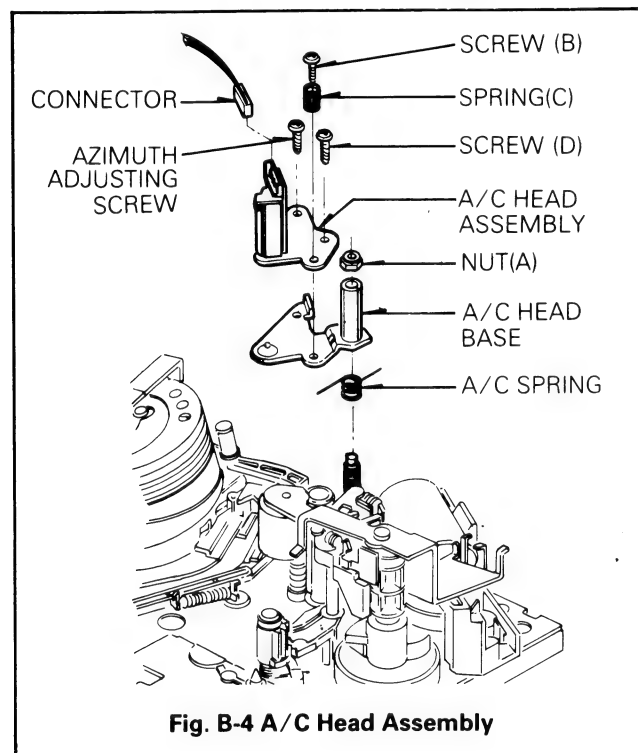


Fig. B-4 A/C Head Assembly

5. Pinch Lever Assembly(Fig. B-5)

- 1) Remove one Nut, and then remove the Dew Bracket.
- 2) Lift up Pinch Lever Assembly.
- 3) Remove the Pinch Spring, and remove the Pinch Lever.
- 4) Remove the Stopper Spring and remove the Pinch Stopper by lifting it up when the Hook of Pinch Stopper is aligned with the hole of Pinch Arm while rotating the Pinch Stopper in the counterclockwise direction.
- 5) Remove the Pinch Cap, and then remove the Pinch Roller Assembly.

* NOTE

- 1) When disassembling and reassembling
 - ① Be careful not to get any foreign substance on the Roller.
 - ② When disassembling the Pinch Cap, be careful not to damage the Pinch Arm.

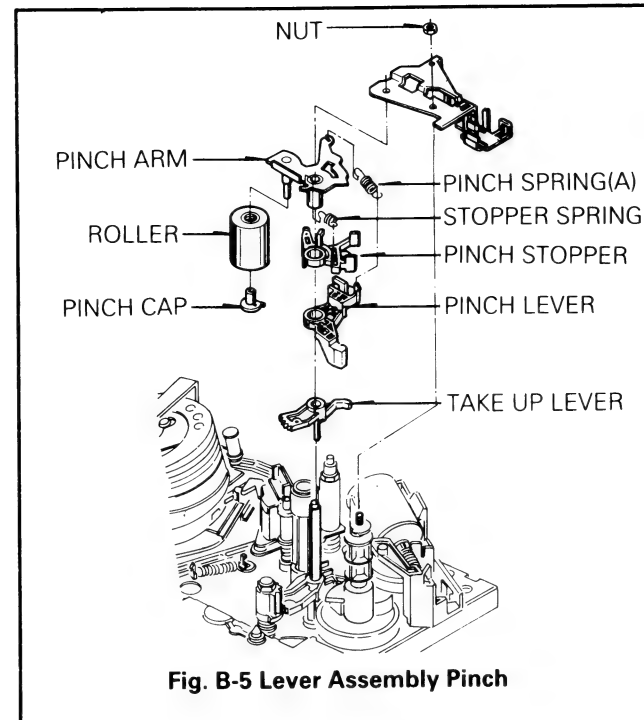


Fig. B-5 Lever Assembly Pinch

6. Loading Motor Assembly(Fig. B-6-1, B-6-2)

- 1) Remove the Dew Bracket.
- 2) Unplug the connector from the Junction P.C.B Assembly
- 3) Remove two screws(A).
- 4) Remove the worm wheel by pushing it down.
- 5) Remove the Loading Motor Assembly by pushing(C) and (D) outward.
- 6) Remove the worm Gear Assembly from the Loading Motor Assembly by pushing it.

* NOTE

- 1) When reassembling
 - ① Make sure that the worm assembly is seated in the axis of Loading Motor.
 - ② Two grooves(G) of Loading Motor should be turned up and two projections(F) of Bracket Assembly should be seated in each at the two holes(E)(Fig. B-6-1).
 - ③ Take notice of the polarity of the Loading Motor.

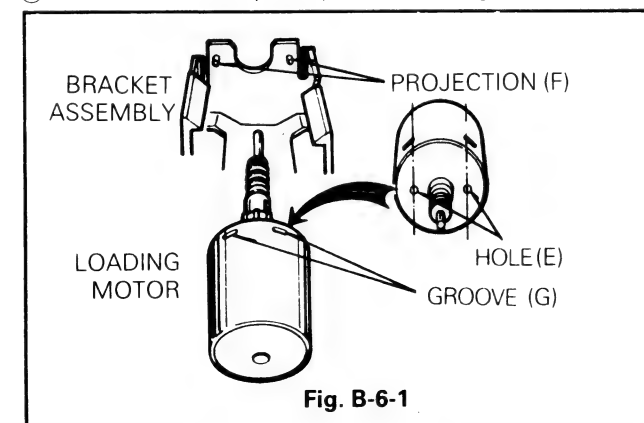


Fig. B-6-1

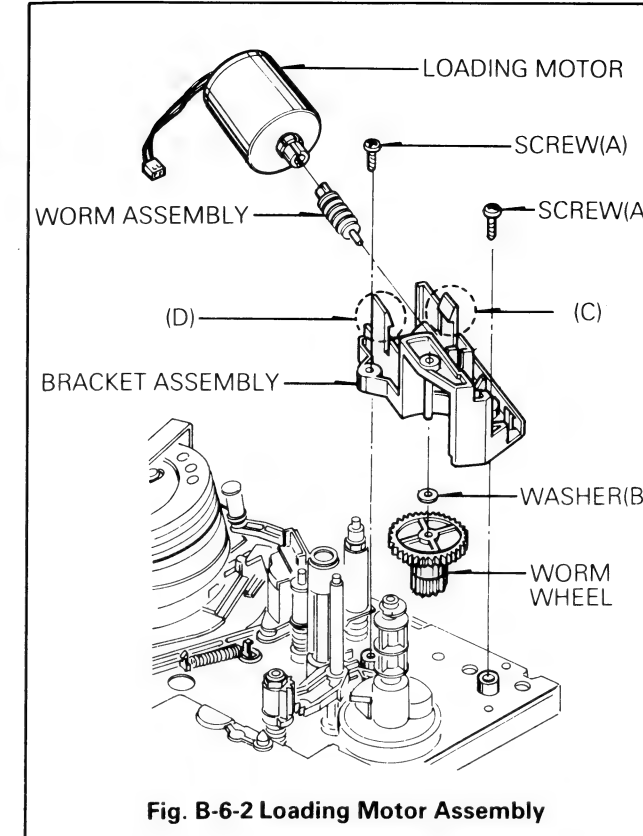


Fig. B-6-2 Loading Motor Assembly

7. Take Up Lever(Fig. B-7)

- 1) Remove the Dew Bracket.
- 2) Remove the Pinch Lever Assembly.
- 3) Remove the Take-Up Lever by pushing the hook(A) outward.

* NOTE

- 1) When disassembling and reassembling
 - ① When disassembling the Take-Up Lever, be careful not to break the Hook(A).
 - ② When reassemble the Take-Up Lever, align the appendant Gear of Lever Take-Up with the appendant Gear of Take-up Arm
 - ③ Reassemble the Take-Up Lever completely by hooking (A).

8. Take Up Arm Assembly(Fig. B-8)

- 1) Remove the Dew Bracket, Pinch Gear, and the Take-Up Lever
- 2) Remove one Nut(A).
- 3) Remove the Take-Up Arm Assembly by lifting it up.
- 4) Remove the spring(B).

* NOTE

- 1) When reassembling
 - ① Align the Gear of Take-Up Arm with the Gear of Take-Up Lever.

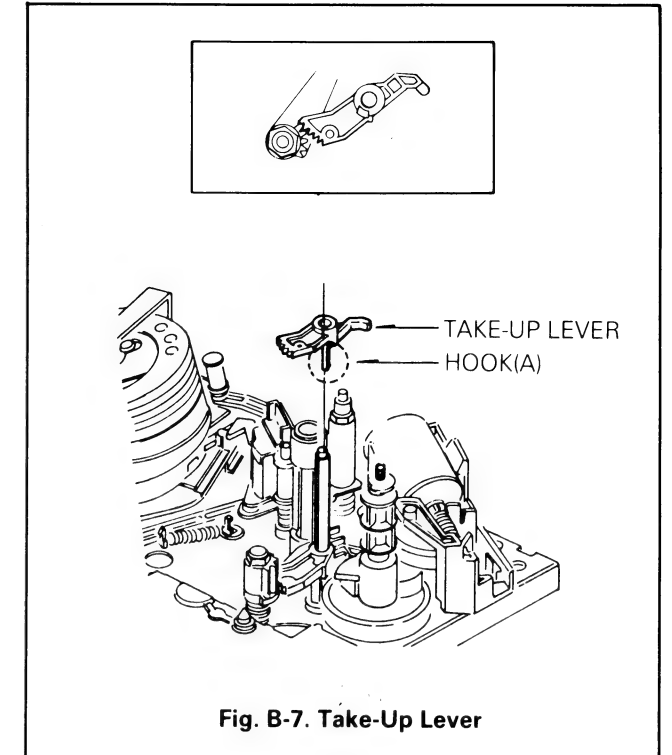


Fig. B-7 Take-Up Lever

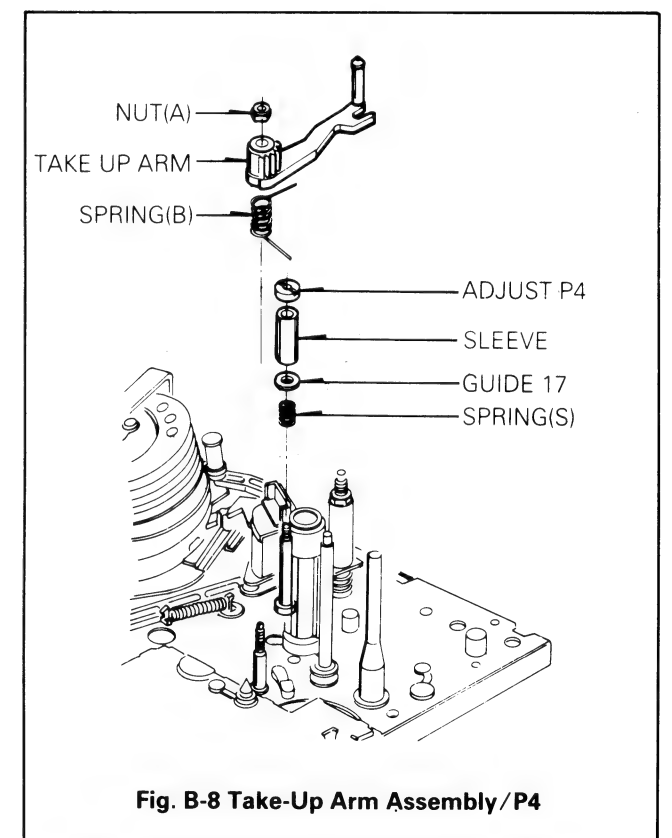


Fig. B-8 Take-Up Arm Assembly/P4

9. P4 Assembly(Fig. B-8)

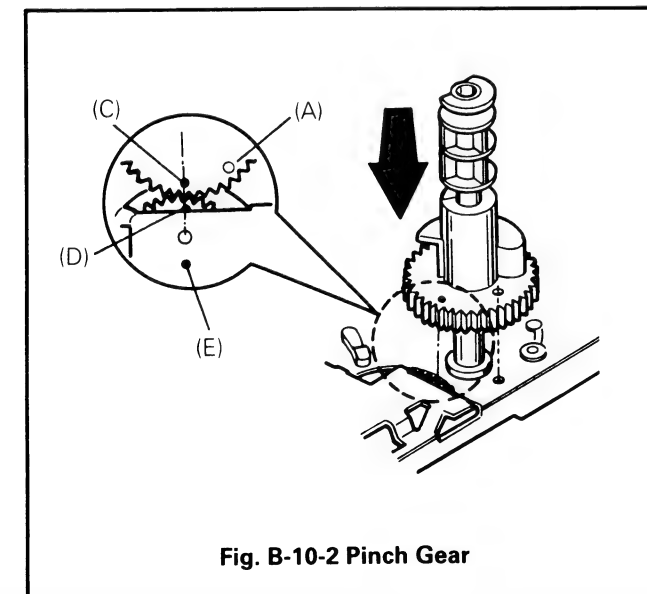
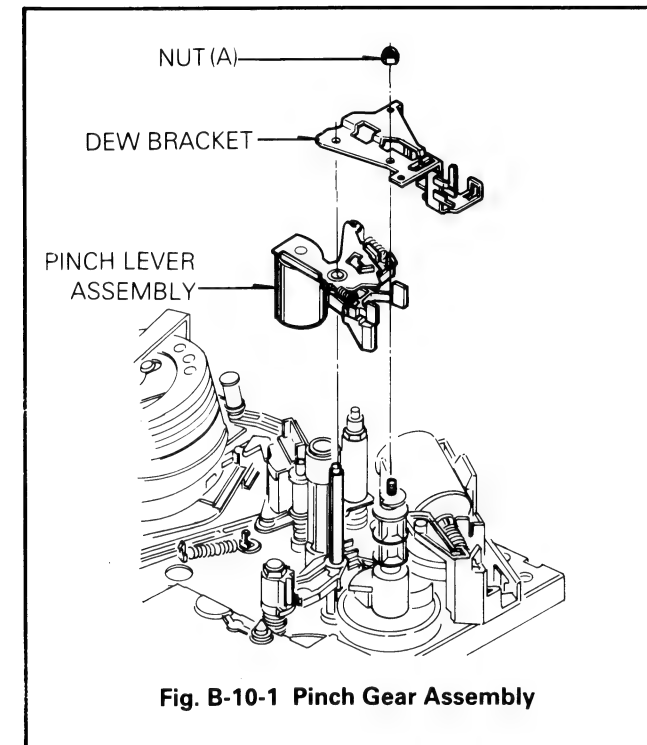
- 1) Remove the Adjust P4.
- 2) Remove the Sleeve.
- 3) Remove the Guide 17.
- 4) Remove the Spring.

10. Pinch Gear

- 1) Remove one Nut(A) and then remove the Dew Bracket.
- 2) Remove the Pinch Lever Assembly by lifting it up.
- 3) Remove the Loading Motor Assembly.
- 4) Remove the Take Up Lever.
- 5) Remove the Pinch Gear Assembly.

* NOTE

- 1) When reassembling, align the hole(A) of Pinch Gear with the hole of chassis, and the hole(C) of Pinch Gear with the groove(D) of the P.C.Gear. Hole(E) of chassis should be aligned with the hole of P.C.Gear.



11. FE(Full Erase) Head Assembly(Fig. B-11)

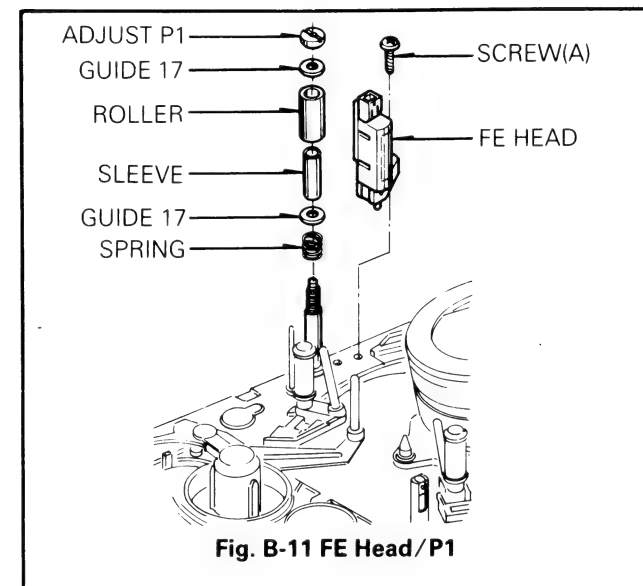
- 1) Unplug the connector.
- 2) Remove one screw(A), and then remove the FE Head.

* NOTE

- 1) When disassembling and reassembling
 - ① Do not touch the Video Head Tip with fingers or tools.

12. P1 Assembly(Fig. B-11)

- 1) Remove the Adjust P1.
- 2) Remove the Guide 17.
- 3) Remove the Roller.
- 4) Remove the Sleeve.
- 5) Remove the Guide 17.
- 6) Remove the Spring.

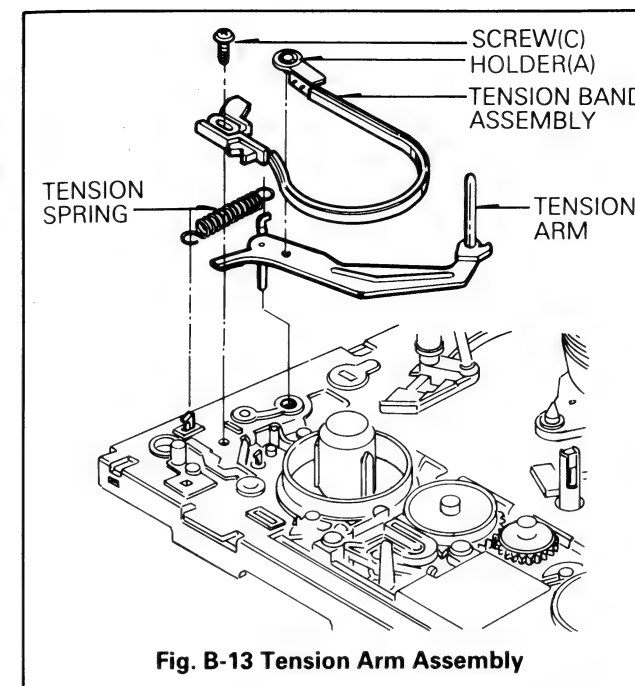


13. Tension Arm Assembly(Fig. B-13)

- 1) Remove one screw(C).
- 2) Remove the Tension Spring.
- 3) Remove the Tension Arm Assembly by pushing hooks outward with the Deck Mechanism Assembly turned over.
- 4) Remove the Tension Band Assembly from the Tension Arm by pushing Hooks of Holder(A).

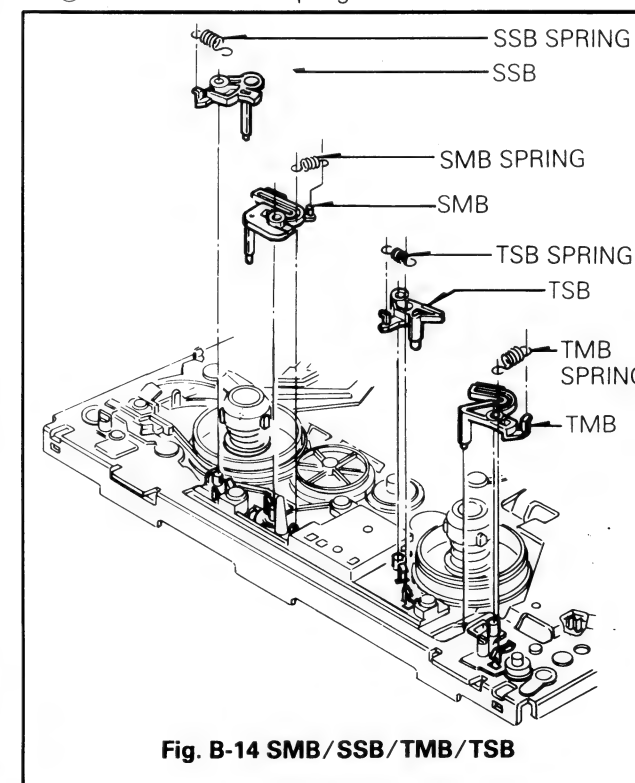
* NOTE

- 1) When disassembling and reassembling, give special attention to the disassembling and reassembling of Tension Arm Assembly, because the Tension Band is interposed between the Supply Reel and the Soft Brake.



14. Supply Soft/Supply Main/Take-Up Soft/Take-Up Main Brake Assembly

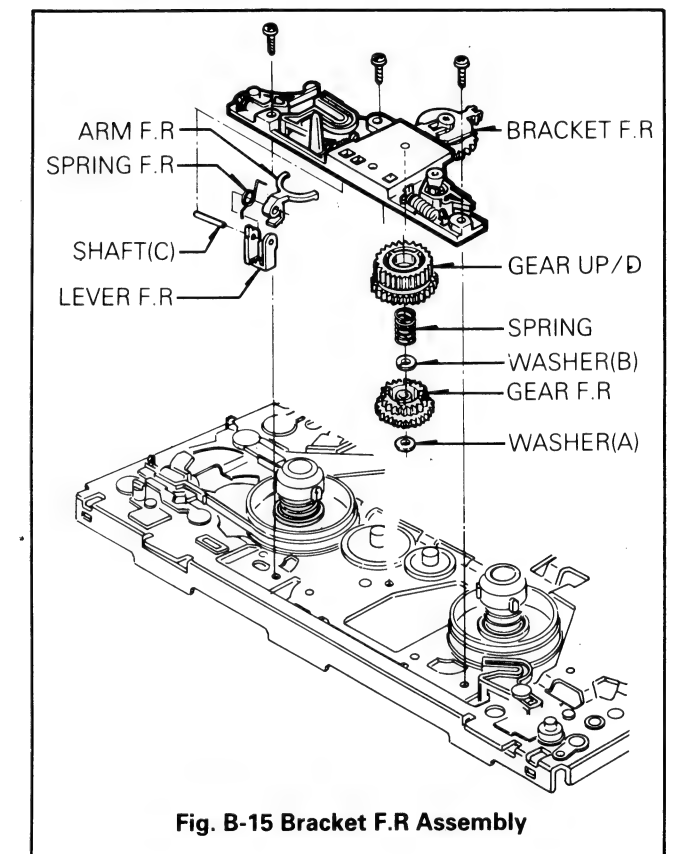
- 1) Supply Soft Brake(SSB)
 - ① Remove the SSB Spring.
 - ② Remove the SSB.
- 2) Supply Main Brake(SMB)
 - ① Remove the SMB Spring.
 - ② Remove the SMB.
- 3) Take Up Soft Brake(TSB)
 - ① Remove the TSB Spring.



- ② Remove the TSB.
- 4) Take-Up Main Brake(TMB)
 - ① Remove the TMB Spring.
 - ② Remove the TMB.

15. Bracket F/R(FF/Rewind) Assembly(Fig. B-15)

- 1) Remove the TMB.
- 2) Remove the Washer(A), and then remove the Gear F.R.
- 3) Remove three screws, and then remove Bracket F/R Assembly from the Deck Mechanism Assembly.
- 4) Remove the Washer(B), and spring Up/D, and then remove the Gear Up/D.
- 5) Remove the shaft(C), and then remove the Arm F.R, Lever F.R and Spring F.R.



16. Supply Reel Assembly(Fig. B-16)

- 1) Remove the Tension Band Assembly.
- 2) Remove the Bracket F/R.
- 3) Lift up the Supply Reel Assembly from the Deck Mechanism Assembly.
- 4) Separate the Reel Cap from the Supply Reel by taking it out of Hooks(A).

* NOTE

- 1) When reassembling
 - ① Make sure that the Supply and Take Up Reel are not exchanged.
 - ② After reinstalling the Supply Reel Assembly, Adjust the Tension.

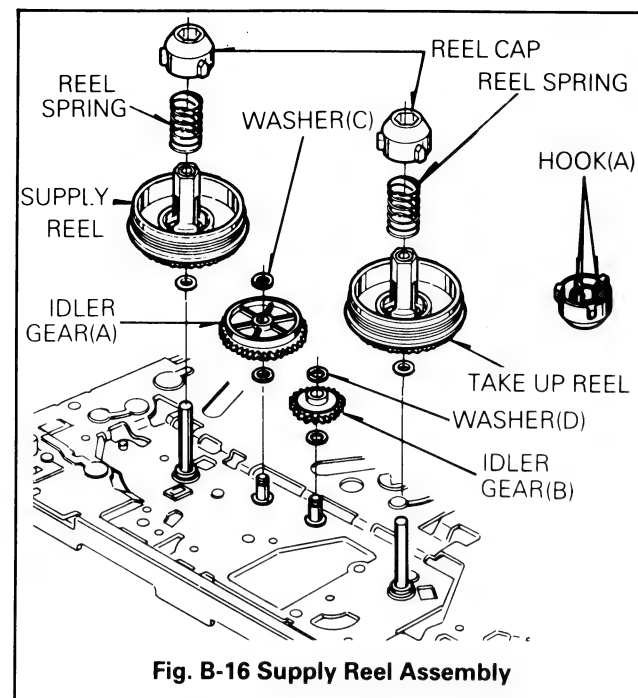


Fig. B-16 Supply Reel Assembly

17. Idler Gear(A), (B)(Fig. B-16)

- 1) After removing the Supply Reel, and supply Main Brake Assembly, remove the washer(C) and remove the Idler Gear(A).
- 2) Remove the Washer(D) and remove the Idler Gear(B).

18. Pulley Gear Assembly(Fig. B-18)

- 1) Turn over the Deck Mechanism Assembly.
- 2) Remove the Capstan Belt.
- 3) Remove the Washer(A) and lift up the Pulley Gear.

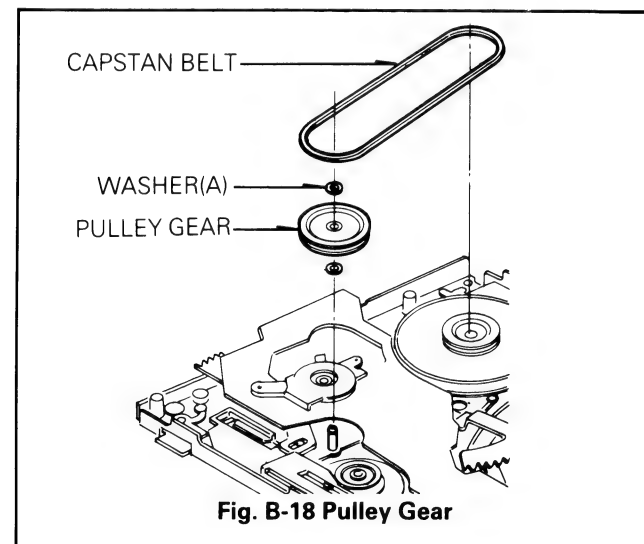


Fig. B-18 Pulley Gear

19. Bracket Bottom Assembly(Fig. B-19)

- 1) Remove one screw(A).
- 2) Remove one Hexagonal Nut, and then lift up the Bracket Bottom Assembly.
- 3) Remove one Washer, and lift up the Ratchet Gear 1.

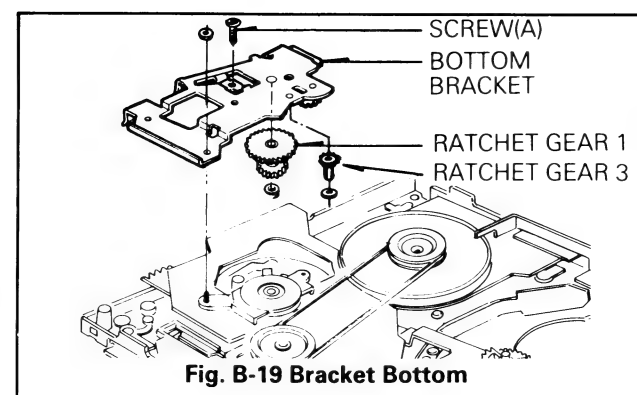


Fig. B-19 Bracket Bottom

- 4) Remove the washer, and then remove Ratchet Gear 3 from the Bottom Bracket.

20. Junction PCB(Printed Circuit Board) Assembly (Fig. B-20-1)

- 1) Remove the Bottom Bracket Assembly.
- 2) Remove two screws(A),(B) and then remove the Junction P.C.B Assembly.
- 3) Remove the Mode Switch from the Junction P.C.B Assembly.
- 4) Remove the Reel Sensors, Sensor LEDs and each holder from the Junction P.C.B(Fig. B-20-2).

* NOTE

- 1) When reassembling the Mode Switch, the groove(V) and (U) of Mode Switch should be at their original place in the Eject Mode.

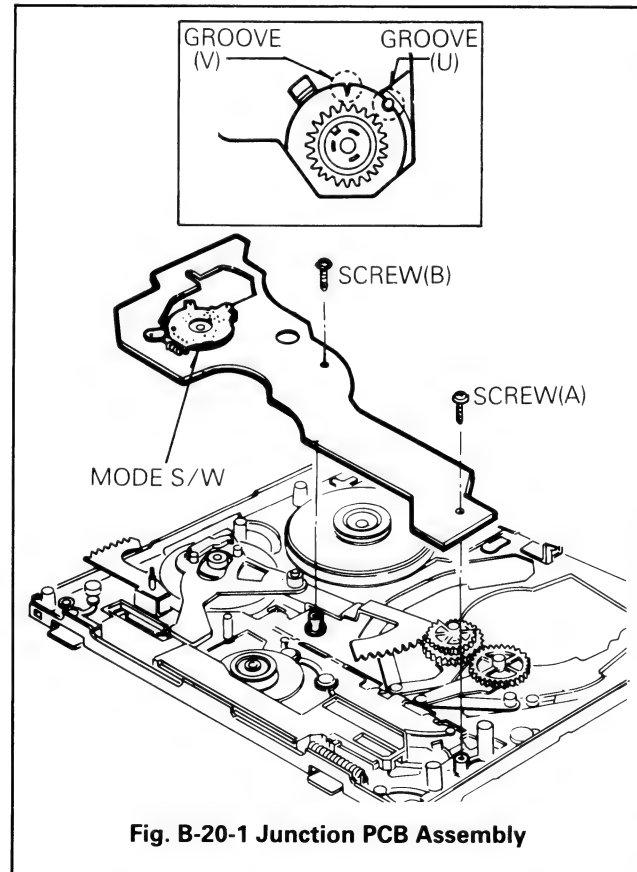


Fig. B-20-1 Junction PCB Assembly

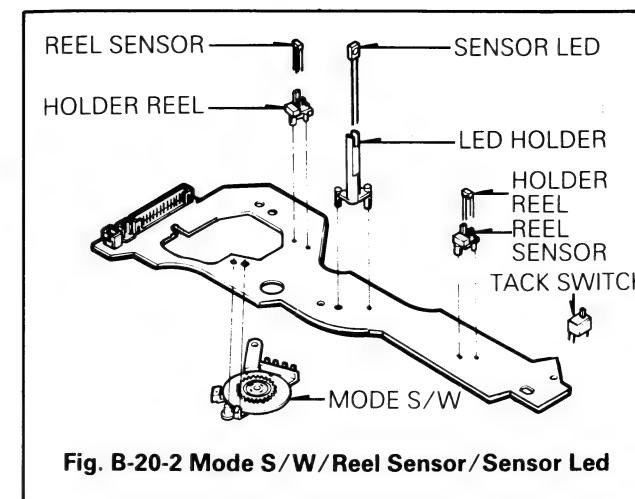


Fig. B-20-2 Mode S/W/Reel Sensor/Sensor Led

21. Capstan Motor and Brake Assembly (Fig. B-21-1)

- 1) Remove the Junction P.C.B Assembly
- 2) Hook the end of Capstan Brake Spring to the projection of Capstan Brake and then remove the Capstan Brake Assembly by lifting it up(Fig. B-21-2).
- 3) Remove two Screws(A), and then remove the Bracket C-Guide.
- 4) Remove the Connector.
- 5) Remove three screws(B), and then remove the Capstan Motor Assembly from the Deck Mechanism Assembly.

* NOTE

- 1) When disassembling and reassembling, hook end of the spring on the projection of Cap-Brake and remove it by lifting it up. Reassemble it in the opposite manner.

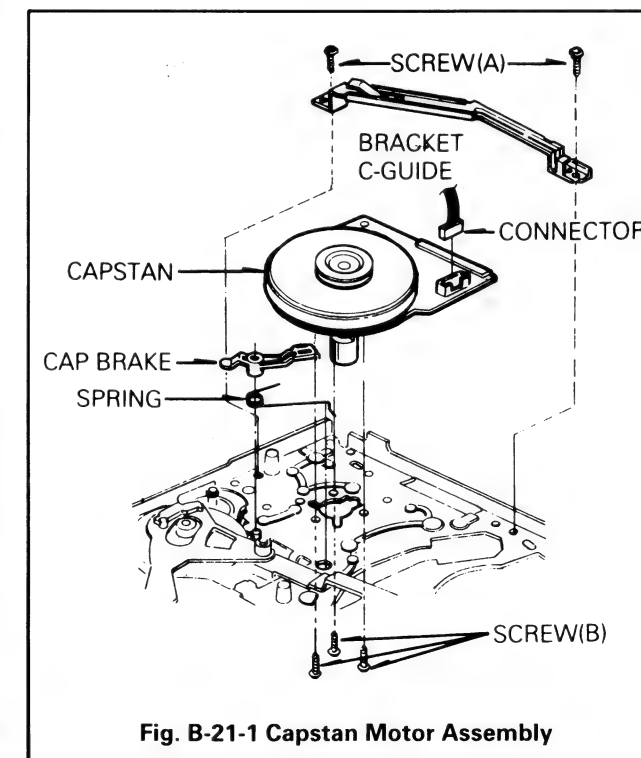
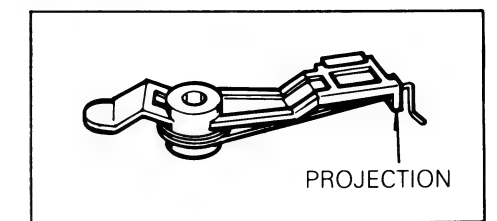


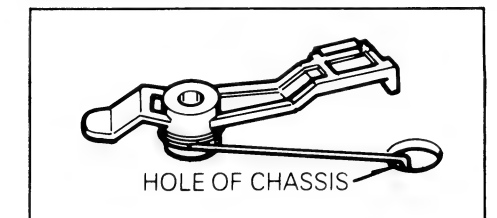
Fig. B-21-1 Capstan Motor Assembly

A: BEFORE REASSEMBLING OR AFTER DISASSEMBLING



PROJECTION

B: AFTER REASSEMBLING OR BEFORE DISASSEMBLING



HOLE OF CHASSIS

Fig. B-21-2 CAP Brake Assembly

22. Function Plate(Fig. B-22)

- 1) Remove two screws(B) in Eject Mode.
- 2) Remove the Function Plate Spring.
- 3) Remove the Function Plate.

* NOTE

- 1) When reassembling, the groove of Lower part of Function Plate should be aligned with the shaft of Tension Lever Assembly(Fig. B-28).

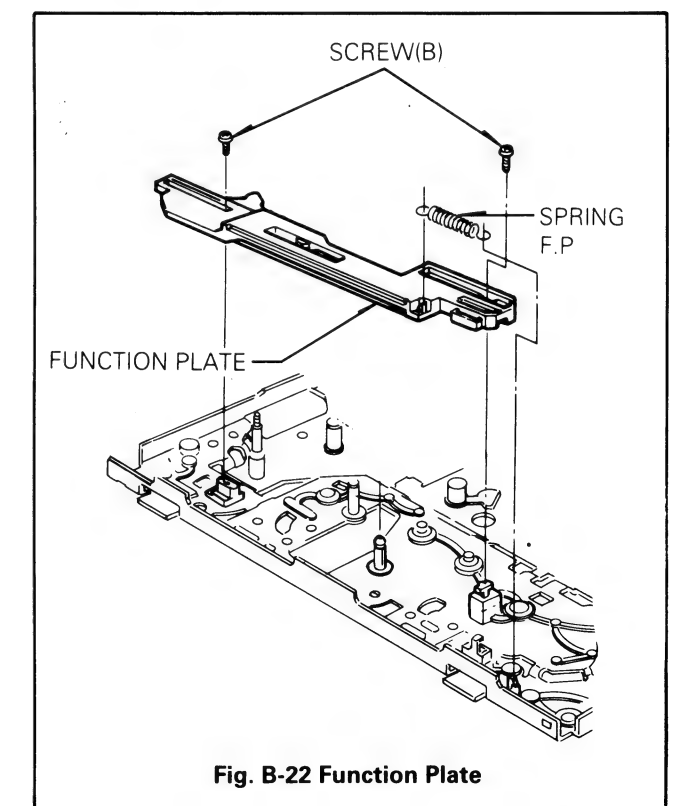


Fig. B-22 Function Plate

23. Ratchet Lever Assembly(Fig. B-23)

- 1) Remove the Function Plate.
- 2) Remove the Junction P.C.B Assembly.
- 3) Remove the Washer(A) and then remove the Ratchet Lever Assembly.
- 4) Remove the Ratchet Spring.
- 5) Remove the Ratchet Lever from the Ratchet 17 by lifting it up when the hook of it is aligned with the hole of Ratchet 17 while rotating it counterclockwise direction.
- 6) Remove the Washer(B), and turn over the Ratchet 17 and then remove the Slant Pin, Spring F, Lever.

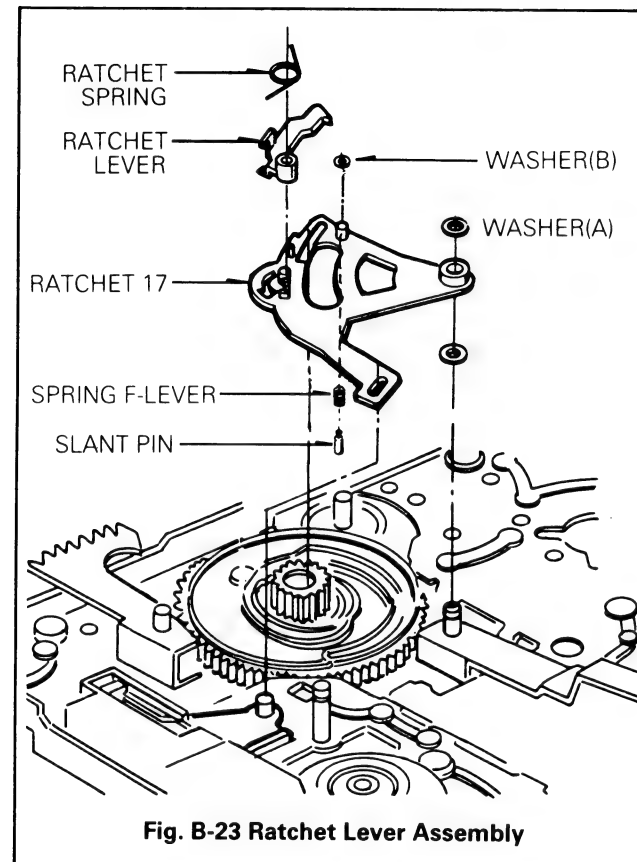


Fig. B-23 Ratchet Lever Assembly

24. Cam Gear/Rack Gear T/Rack Gear FL(Fig. B-24-2)

- 1) Remove the washer(A) and remove the Ratchet Lever Assembly. (Fig. B-24-1).
- 2) Remove the washer(B), and then remove the Cam Gear (Fig. B-24-2).
- 3) Remove the Rack Gear F.L. (Fig. B-24-3)
- 4) Remove the Rack Gear T. (Fig. B-24-3)

* NOTE

- 1) When reassembling
 - ① Align the Projection of Rack Gear T with the hole of Loading Gear.
 - ② Drive the Rack Gear F.L in the direction of arrow(D).
 - ③ Hole of Cam should be aligned with the hole of chassis, and the groove(■) of Cam Gear should be aligned with the hole of PC Gear (Fig. B-25)

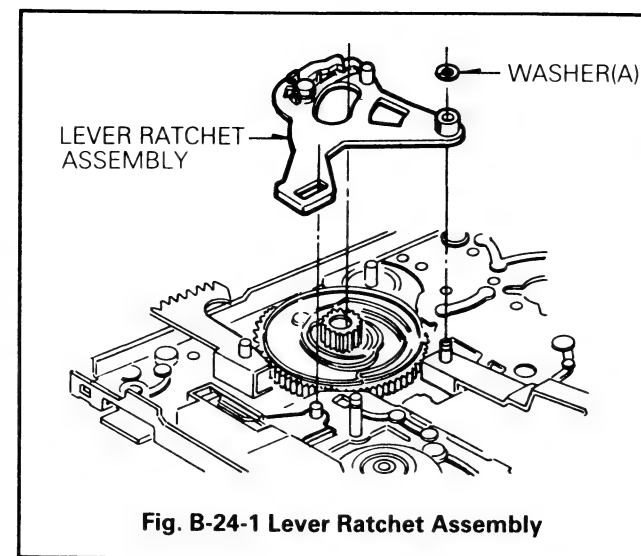


Fig. B-24-1 Lever Ratchet Assembly

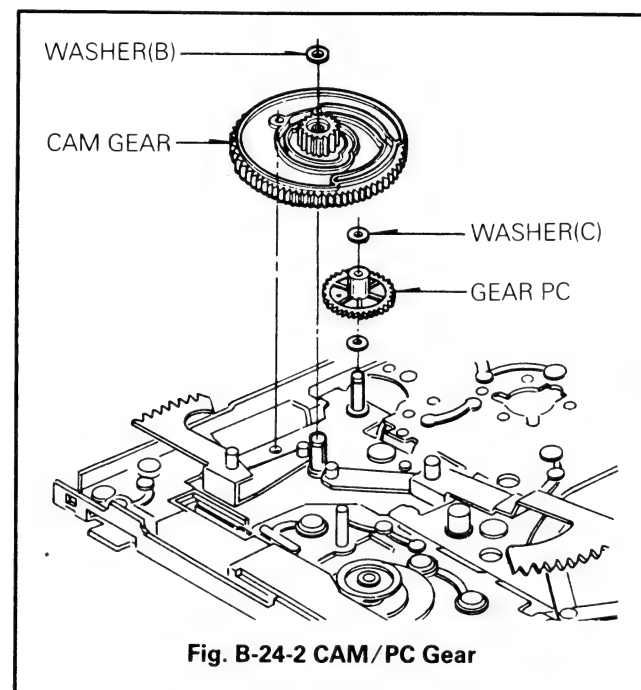


Fig. B-24-2 CAM/PC Gear

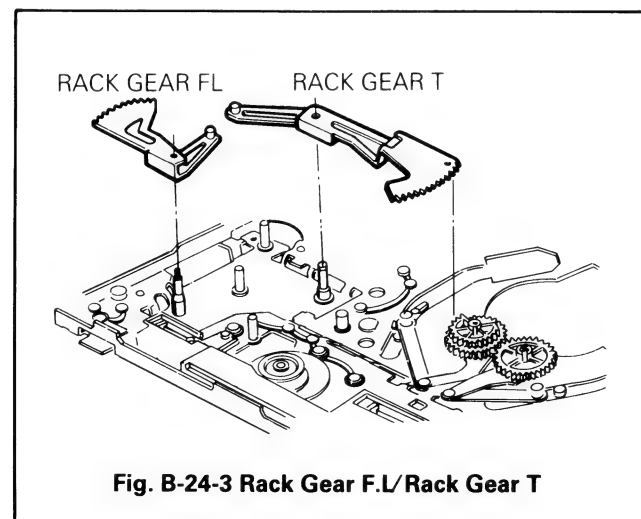


Fig. B-24-3 Rack Gear F.L/Rack Gear T

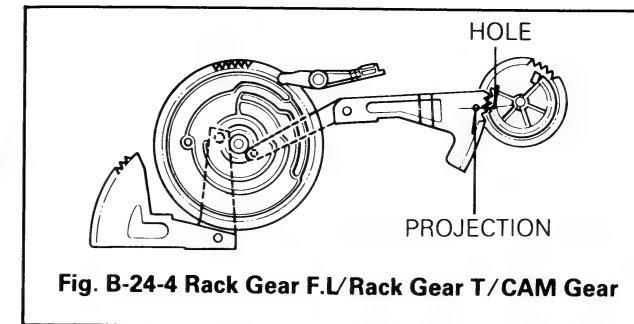


Fig. B-24-4 Rack Gear F.L/Rack Gear T/CAM Gear

25. PC Gear(Fig. B-25)

- 1) Remove the washer(C).
- 2) Remove the P.C Gear by lifting it up.

* NOTE

- 1) When reassembling
 - ① The Groove of PC Gear should be aligned with the groove(V) of Cam Gear, and another hole of it should be aligned with the hole of chassis (Fig. B-25).

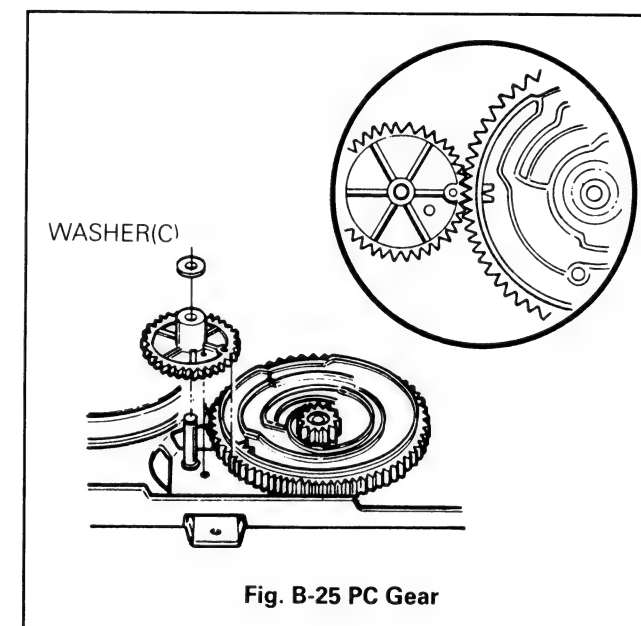


Fig. B-25 PC Gear

26. P2 and P3 Slant Assembly(Fig. B-26)

- 1) After finishing the disassembly of Drum Assembly, remove the P2 and P3 Slant Assembly by turning the Loading Gear(R) in the clockwise direction. (Loading direction)
- 2) Loosen the set screws.
- 3) Remove the Roller Guide from the Slant Base.

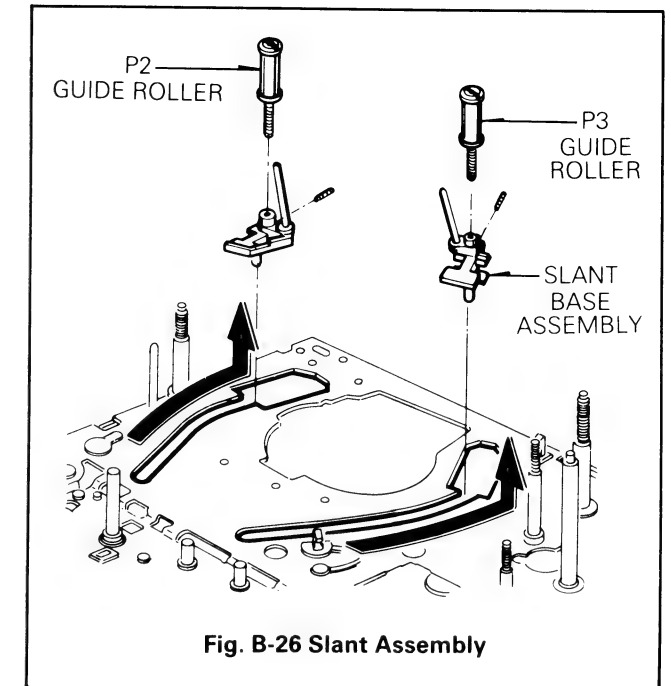


Fig. B-26 Slant Assembly

* NOTE

- 1) When disassembling and reassembling
 - ① Use a Hexagonal wrench to remove set screw.
 - ② Take notice that the P2 and P3 Slant Assembly should not be changed from their original place.

27. Loading Gear Assembly(L),(R) (Fig. B-27)

- 1) Remove the Cam Gear, Rack-T.
- 2) Remove the P2 and P3 Slant Assembly by turning the Loading Gear(L),(R) in the Loading direction
- 3) Lift up the Loading Gear Assembly(L),(R) from the Deck Mechanism Assembly.
- 4) Remove the Spring Load(L),(R).
- 5) Separate the Loading Gear(L), (R) from Lever Load(L),(R).

* NOTE

- 1) When reassembling
 - ① Make sure that the Loading Gear(L) and (R) should not be changed from their original place.
 - ② Align the groove of Loading Gear(L),(O) with the groove of Gear(R),(O).

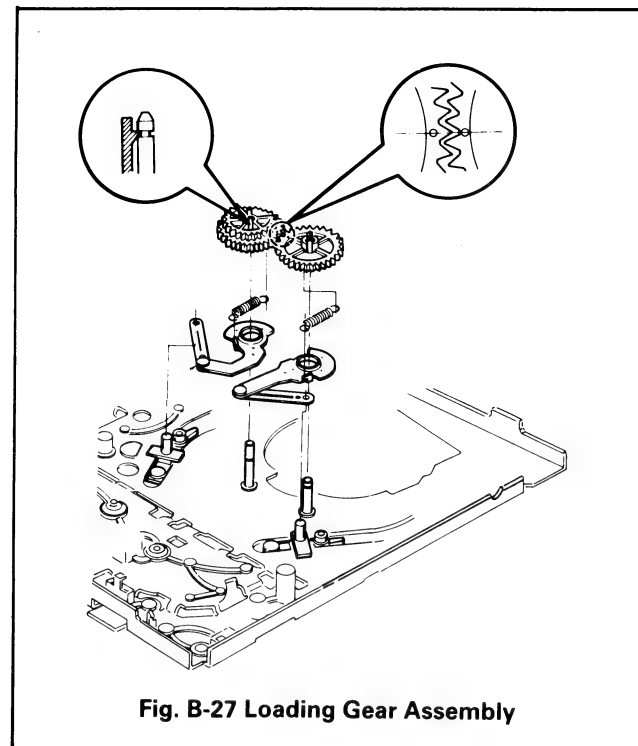


Fig. B-27 Loading Gear Assembly

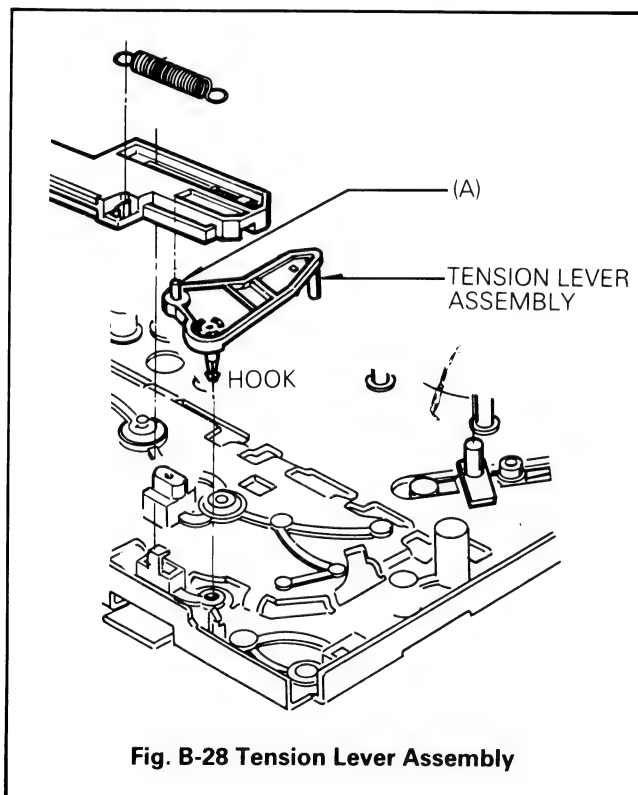


Fig. B-28 Tension Lever Assembly

28. Tension Lever Assembly(Fig. B-28)

- 1) Remove the Function Plate.
- 2) Remove the Tension Lever Assembly by pushing hooks inward.

* NOTE

- 1) When reassembling
 - ① Set the part(A) of Tension Lever Assembly in the groove of Lower part of Function Plate.
 - ② After reinstalling the Tension Lever Assembly, adjust the Tension Post and the Tension with a Tension Cassette.

29. Clutch Gear Assembly(Fig. B-29)

- 1) Remove the Pulley Gear.
- 2) Remove the Plate Function.
- 3) Remove the washer(A), and then remove the Clutch Gear Assembly.

* NOTE

- 1) When reassembling
 - ① Do not disassemble the Clutch Gear Assembly any further, because Torque adjustment is not adjustable.

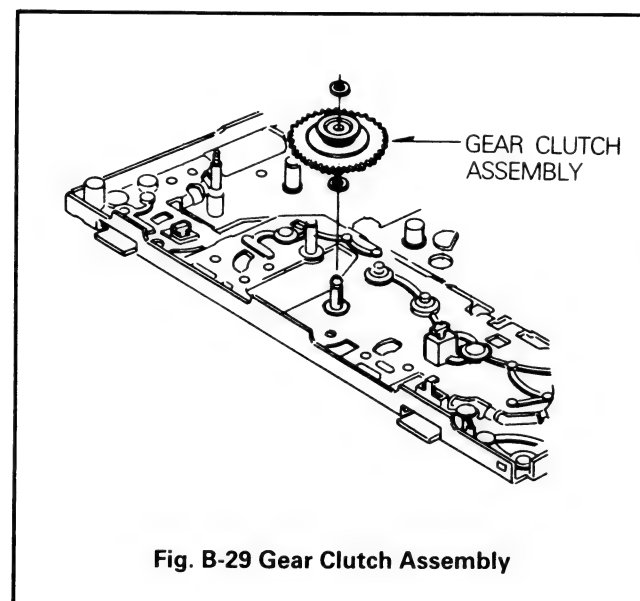


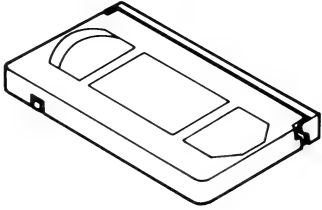
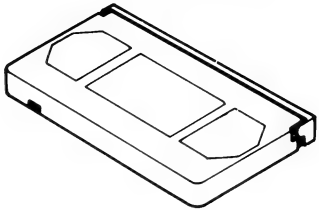



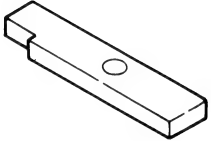


Fig. B-29 Gear Clutch Assembly

30. Take Up Reel Assembly(Fig. B-16)

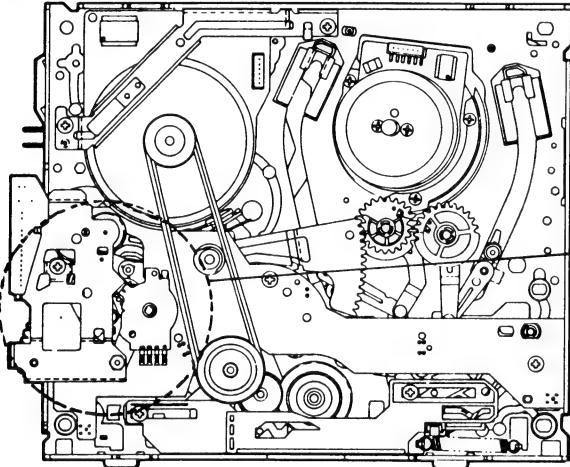
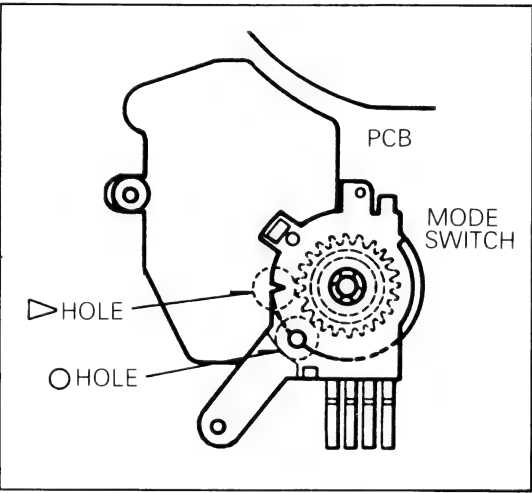
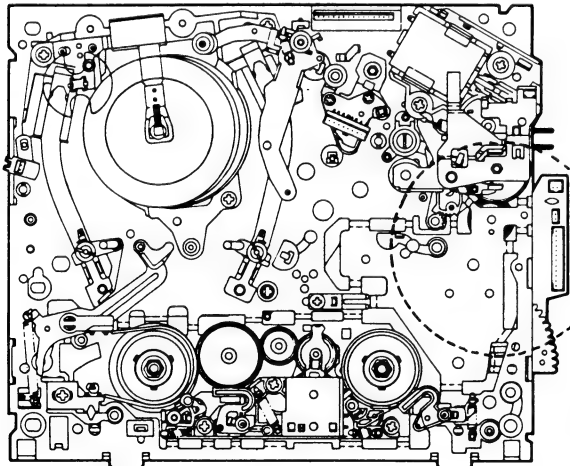
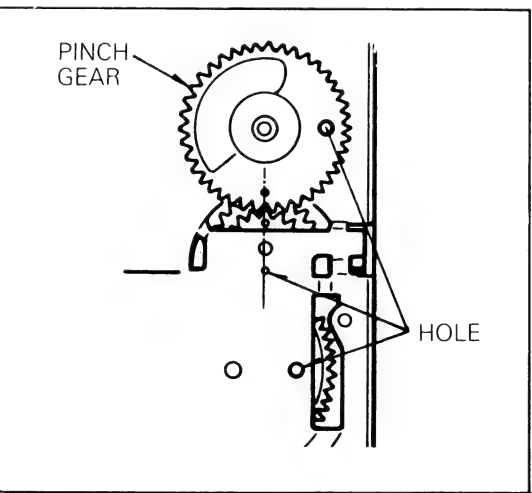
- 1) Remove the TMB(Fig. B-14)
- 2) Lift up the Take-up Reel Assembly from the Deck Mechanism Assembly.
- 3) Separate the Reel Cap and Spring from the Take-Up Reel by releasing Hooks(S).

MECHANISM ADJUSTMENTS

• Tools and Fixtures for Deck

1. Back tension meter Parts No ; D00-D006 	2. NTSC alignment tape Parts No NTSC ; DTN-0001 PAL ; DTN-0002 	3. Master plane Parts No ; RJ10028 
4. Torque gauge Parts No ; D00-D002 	5. Torque gauge adaptor Parts No ; D09-R001 	6. Reel table height fixture Parts No ; RJ10027 
7. Post height adjusting driver Parts No ; DTL-0005 	8. M3 Nut driver Parts No ; DTL-0006 	

1. Mechanism State Switch(Mode Switch) Check

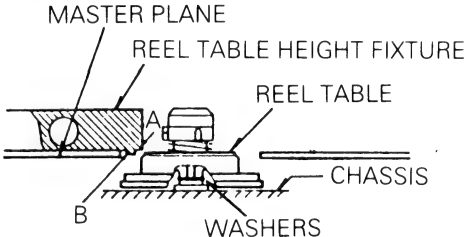
Purpose: To detect accurately the mechanism state and prevent the mechanism from malfunction.		
Test Equipment/Fixture	VCR State	Check Point
● Blank tape	● Eject Mode (with cassette ejected)	● Mechanism state switch (Mode Switch and Cam)
Check Procedure 1) Turn the VCR on and eject the tape by pressing eject button. 2) Remove the Cabinet Top and Main P.C.Board, and then turn the Cam so as to align the hole of chassis with the hole of Cam and Pinch Gear, and Holes of Pinch Gear and P.C Gear with each other. 3) Remove the Bottom Cover and then check that the grooves(V) and (O) of Mode S/W are at their original place. 4) If the above alignment is not obtained, adjust as follows. (1) Remove the Bracket Assembly Bottom and the Capstan Belt in the state of power off. (2) Remove the P.C.B Assembly, place the grooves (V) and (O) of mode switch at their original place, and then reassemble the P.C.B Assembly. (3) Turn the power on and perform the various operations to check that the loading and the unloading are correct.		
Check Diagram  BOTTOM VIEW  PCB MODE SWITCH HOLE HOLE Fig. C-1-1		
 TOP VIEW  PINCH GEAR HOLE Fig. C-1-2		

2. Preparation for Adjustment(To set VCR to the loading state without inserting a cassette)

- 1) Unplug the power cord from the AC outlet.
- 2) Remove the Cabinet Top and Front Loading mechanism.
- 3) Plug the power cord into the AC outlet.
- 4) Turn the VCR on and push the tact switch in the PCB Assembly.
The VCR can accept input of each mode in this case. However the rewind and review operation cannot be performed for more than a few seconds because the take-up reel table is in the stop state and reel pulses cannot be detected.

(NOTE)
Always return the VCR to the Front Loading Mechanism Assembling State in the following order after the above operations have been performed.
1) Press the Eject button after turning the power on.
2) Wait for about 10 seconds until searching out the assembly position.
3) Assemble the Front Loading Mechanism and connect the Front Loading Mechanism Connector.
4) Refer to the "Front Loading Mechanism Disassembly" which is described previously.

3. Reel Table Height Adjustment

Purpose: To set the reels of the cassette to the specified height, thus determine the height of tape.			
Test Equipment/Fixture	Preparation for adjustment	VCR State	Adjustment Points
● Master Plane ● Reel Table Height Fixture	1) Remove the Front Loading Mechanism 2) Mount the Master Plane and place the Reel Table Height Fixture on it.		● Washer under the Supply and Take-Up Reel Tables.
Adjustment procedure 1) Check that the Reel Table is between sections A and B of the Reel Table Height Fixture. 2) If the table is not between sections A and B of the Fixture, replace the washers(two types, 0.3mm and 0.5mm thick) in the Reel Table or adjust them. **CAUTION** When the Tension Arm and Tension Band are removed, adjust the tension post position and tension after reinstalling them.		Adjustment Diagram  MASTER PLANE REEL TABLE HEIGHT FIXTURE. REEL TABLE CHASSIS WASHERS SUPPLY AND TAKE-UP REEL TABLE Fig. C-3	

4. Tension Post Position and Tension Adjustment

Purpose: To make the tension of tape constant so that the contact between the video heads and tape is stabilized.

Test Equipment/Fixture	VCR State	Adjustment Point
● Tension Meter (Tension adjustment)	● Play without cassette and with a Tension Meter	● Holder Band(A)

Adjustment Procedures
〈Position Adjustment〉

1) Perform loading without inserting a tape and loosen the screw that attaches the Band Holder(B) to the D-Deck Mechanism Assembly.

2) Insert the (—)type driver between the Band Holder(B) and the "V" groove of the chassis.

3) Move the Band Holder(B) right and left and align the center of tension post with the center of P1.

4) Tighten the screw that attaches the Band Holder(B) to Deck Mechanism Assembly.

〈Tension Adjustment〉

1) Play the Tension Meter and read the Tension Meter:35g·cm±2.5g·cm(reference value).

2) If the result is abnormal.

(1) over the standard:loosen the screw, move the Band Holder(B) right a little and then tighten the screw and make sure that this adjustment is correct.

(2) below the standard:loosen the screw, move the Band Holder(B) left a little and then tighten the screw and make sure that this adjustment is correct.

****CAUTION****
The range of movement of Band Holder(B) should be within ±1.5mm while being adjusted.
If the range is over, you should recheck the Reel Brake, Tension Arm and Spring.

Adjustment Diagram

ALIGN THE CENTER OF P1 AND TENSION POST

Fig. C-4-1

SCREW
"V" GROOVE
HOLDER BAND(B)

Fig. C-4-2

5. Checking Torque

Purpose: It is necessary to check the tension, torque and compression force at the tape take-up section and moving section to make the tape run smoothly and satisfy the basic performance of the VCR. Check these if the tape does not run smoothly or the tape speed is abnormal.

Test Equipment/Fixture	VCR state
● Torque Gauge ● Torque Gauge Adaptor	● Set the VCR to each operation mode without inserting a cassette. (See '2 Preparation for Adjustment')

Item	VCR Operation mode	Measurement Reel	Measurement Values
Main brake torque.	Eject	Supply and take-up reels	600g·cm or more
Slack removal torque	Unloading(power off)	Supply reel	110~200g·cm
Fast forward torque	Fast forward	Take-up reel	400g·cm or more
Rewind torque	Rewind	Supply reel	400g·cm or more
Play take-up torque	Play	Take-Up reel	90~130g·cm

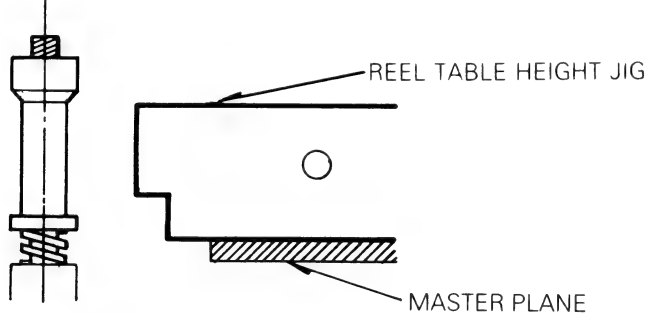
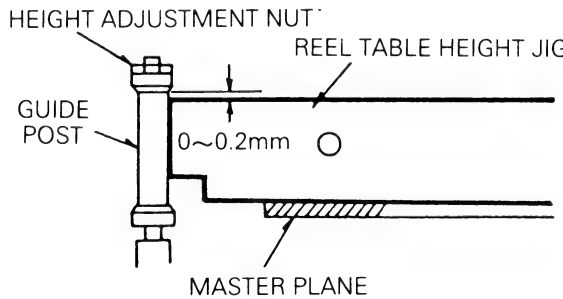
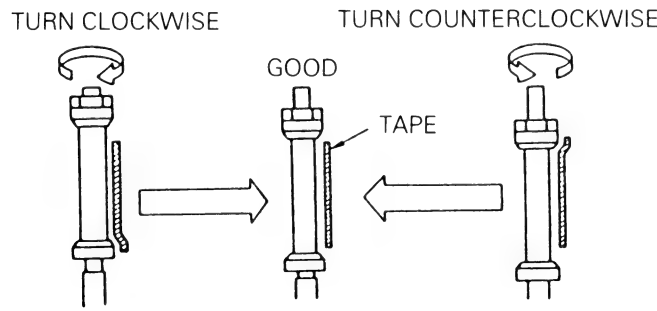
Checking Method
The values are measured by using a torque gauge and torque gauge adaptor with the torque gauge fixed.

Note:This value is measured when the VCR is shifted in the unloading direction from the fast forward or rewind mode and quick braking is applied to both Reel Tables.

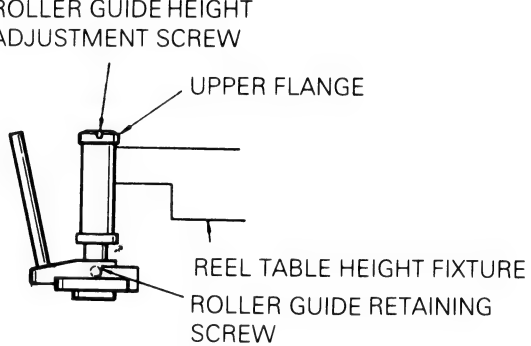
TORQUE GAUGE
TORQUE GAUGE ADAPTOR
REEL TABLE

Fig. C-5

6. Guide Post Height Adjustment

Purpose: To control tape height		
Test Equipment/Fixture	VCR State	Adjustment Point
● Master Plane ● Blank Tape ● Reel Table Height Jig ● Post Height Adjusting Driver ● M3 Nut Driver	● Mount the Master Plane and place the Reel Table Height Jig on it.	● Nuts on Impedance Roller ● Guide Post
<div>1) Set the clearance between the bottom of the P1 Roller Flange and under cut of Reel Table Height Fixture to 0~0.1mm(Fig. C-6-1).</div> <div>2) Set the clearance between the bottom of the Guide Post upper flange and top of the Reel Table Height Jig to 0~0.2mm(Fig. C-6-2).</div> <div>3) Load and run the Tape and check that the tape does not ride over the upper and lower flanges of the guide post.</div> <div>4) If the tape rides over either flange, adjust the height of P1 Roller and Guide Post as follows(Fig. C-6-3).<ul style="list-style-type: none">● If the tape rides over the upper flange, turn the nut counterclockwise.● If the tape rides over the lower flange, turn the nut clockwise.</div>		
<div>Adjustment Diagrams</div> <div></div> <div>Fig. C-6-1</div> <div></div> <div>Fig. C-6-2</div> <div></div> <div>Fig. C-6-3</div>		

7. Guide Roller Height Adjustment

Purpose: To regulate the height of tape so that the bottom of tape runs along the tape guide line on the lower drum.		
Test Equipment/Fixture	VCR State	Adjustment Point
● Master Plane ● Reel Table Height Fixture ● Hexagonal Wrench ● Post Height Adjusting Driver	● Mount the Master Plane and place the Reel Table Height Fixture on it.	● Roller Guide Height Adjustment Screws on the Supply and Take-Up Guide Rollers.
Adjustment Procedure <div>1) Align the bottom of the Guide Roller's upper flange and the top of the Reel Table Height Fixture.</div> <div>2) Perform the precise adjustment next.</div> <div>3) When the Guide Roller is damaged, release the Guide Roller retaining screw and then replace the Guide Roller.</div>		Adjustment Diagram <div></div> <div>Fig. C-7-1</div>

B. Precise Adjustment

Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Point
● Oscilloscope ● Post Height Adjusting Driver ● Alignment Tape ● Hexagonal wrench	● CH-1:PB RF Envelope ● CH-2:SW 3-Hz ● Head Switching Output Point ● RF Envelope Output Point	● Play an alignment tape	● Guide Roller Height Adjustment Screws.

Adjustment Procedure

- 1) Play an alignment tape after connecting the probe of the oscilloscope to RF Envelope Output Test Point and Head Switching Output Test Point.
- 2) Tracking control(in PB mode):Center position(When this adjustment is performed after the drum assembly has been replaced, set the tracking control so that the RF output is maximum.)
- 3) Height adjustment screw:Flatten the RF waveform.
- 4) Turn(Move) the tracking control(playback) clockwise and counterclockwise.(to the right and left)
- 5) Check that the drops of RF output are uniform at the start and end.

Waveform Diagrams

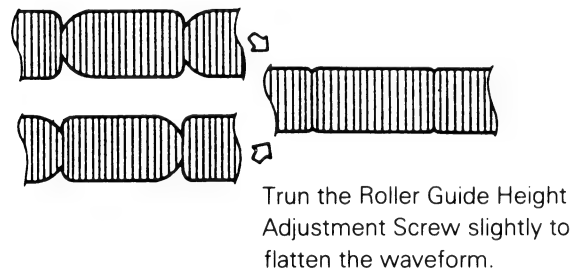
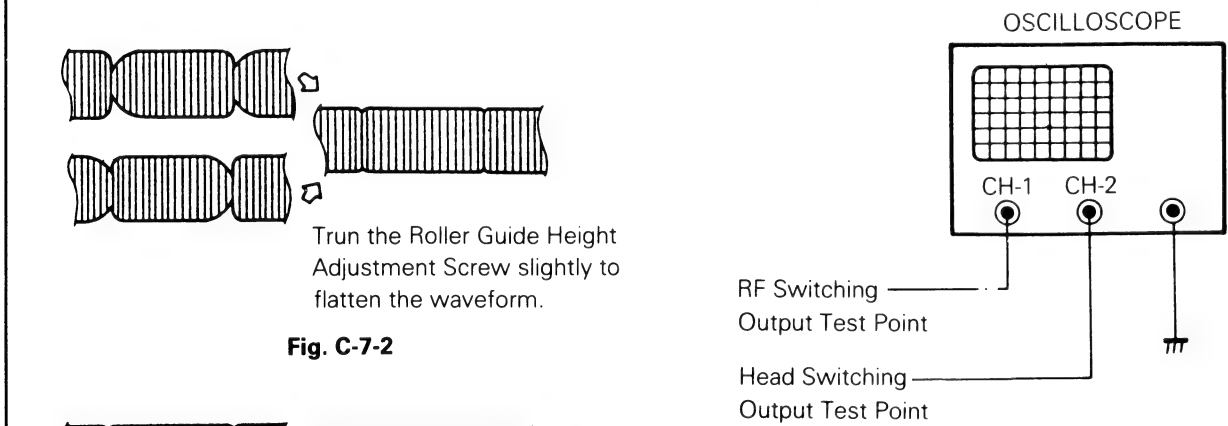


Fig. C-7-2

Connection Diagram



Tracking control at center Turn(Move) the tracking control to both directions.

Fig. C-7-3

8. Audio/Control(A/C) Head Adjustment

Purpose: To keep the contact between the tape and head so that the specified track is recorded and played back.

A. Coarse Adjustment

Test Equipment/Fixture	VCR State	Adjustment Points
● Master Plane ● Reel Table Height Fixture ● M3 Nut Driver	● Mount the Mater Plane and place the Reel Table Height Fixture on it.	● Special screw ● Cone Point Screw for tilt ● Azimuth Adjustment Screw
● Blank tape	● Run the blank tape	● A/C Head Adjuster

Adjustment procedure/ Adjustment Diagram

- 1) Tighten the spring section of the special screw so that it protrudes 6.4mm(approx.) over the top of Head Base(1).

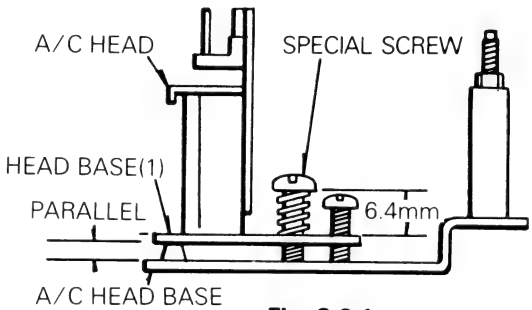


Fig. C-8-1

- 2) Turn the Azimuth Adjustment Screw and Cone Point Screw so that the Head Base(1) and A/C Head Base are parallel.

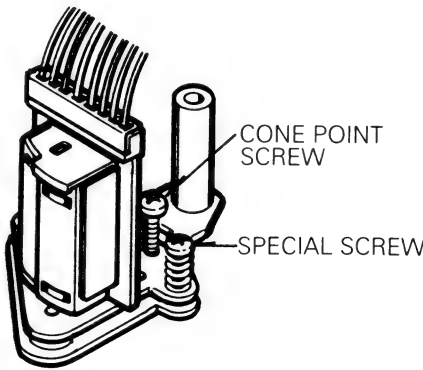


Fig. C-8-2

- 3) Turn the A/C Head Adjuster until the clearance between the Master Plane and Head Base(1) is approx 1.2mm.

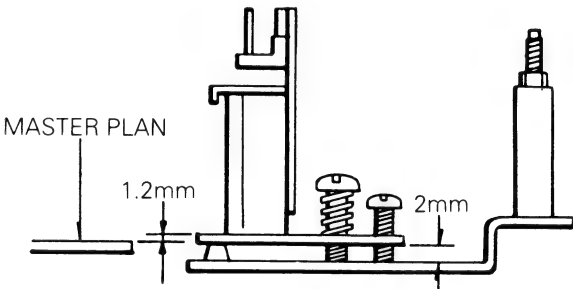


Fig. C-8-3

- 4) Remove the adjustment fixture, load a blank tape and set the VCR to the play mode.
- 5) Check that there is no conspicuous curling and riding over around the A/C head. If there is conspicuous curling or riding over, readjust the Cone Point Screw, Azimuth Adjustment Screw and A/C Head Adjuster. When the bottom edge of tape is 0.20~0.25mm from the bottom edge of the control head's core, the height of A/C head is ideal.

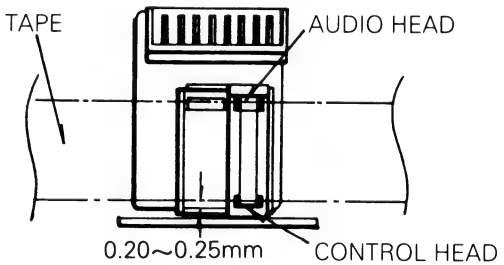
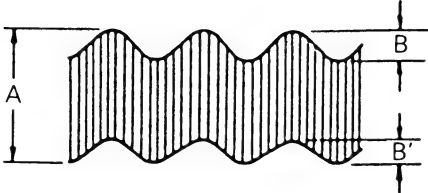


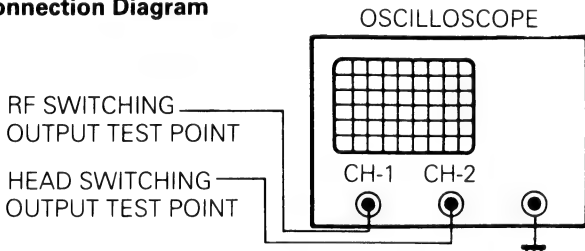
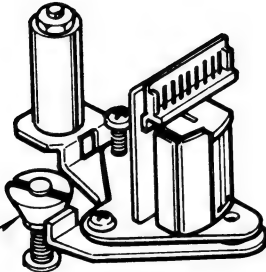
Fig. C-8-4

- 6) Perform the precise adjustment continuously.

B. Precise Adjustment

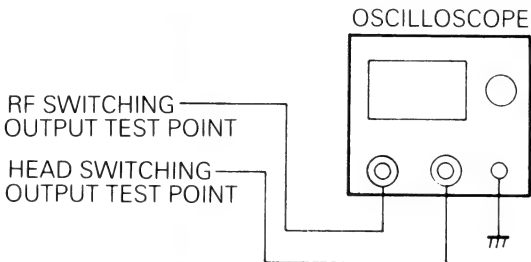
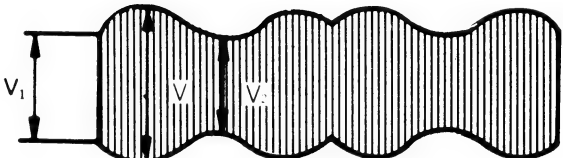
Test Equipment/Fixture	Test Equipment Connection Point	VCR State	Adjustment Points
● Oscilloscope ● Alignment tapes ● M3 Nut Driver	● Audio output jack	● Play an alignment tape 1KHz, 7KHz sections	● Azimuth Adjustment Screw ● A/C Head adjuster ● Cone point screw
Adjustment Procedure 1) Connect the probe of oscilloscope to audio output jack. 2) Adjust the Azimuth Adjustment Screw, A/C Head adjuster and cone point screw slightly and alternately so that a Audio 1KHz output is maximum and flat.(minimum fluctuation) 3) Adjust the Azimuth Adjustment Screw slightly and alternately so that the Audio 7KHz output is maximum.		Waveform Diagram  A:Maximum BB':Minimum Fig. C-8-5	

9. X-Value Adjustment

Purpose: To obtain compatibility with other VCRs.			
Test Equipment/Jigs	Test Equipment Connection Points	VCR State	Adjustment Points
<ul style="list-style-type: none">● Oscilloscope● Alignment tapes● Post Height Adjusting Driver	<ul style="list-style-type: none">● CH-1:PB RF Envelope● CH-2:SW 30Hz● Head Switching Output Test Point● RF Envelope Output Test Point	<ul style="list-style-type: none">● Play an alignment tape	<ul style="list-style-type: none">● X Adjust
Connection Diagram 		Adjustment Procedure  X ADJUST	
<ol style="list-style-type: none">1) Insert a cassette tape, and then "AUTO TRACKING" will be displayed on the Digitron, then push the Tracking ⊕ or ⊖ Keys one time as soon as possible to make the VCR release the Auto Tracking.2) Turn the Adjust X to the maximum RF Envelope level when the VCR is free from the Auto tracking.3) If RF envelope output is maximized from the center click position in right direction(clockwise), set the tracking control to the center and turn the X Adjust counterclockwise.4) If in left direction(counterclockwise), turn it clockwise by same method.5) In case of the 30 μ m, head will trace over a 60 μ m width track, readjust it so that RF Envelope output begins falling at the same angle when tracking control is turned either left or right.			

10. Adjustment after Replacing Drum Assembly(Video Heads)

Purpose: To suppress drift in the height relative to the Guide Roller and drift of the X Value after replacing the drum.			
Test Equipment/Fixture	Test Equipment Connection Points	VCR State	Adjustment Points
<ul style="list-style-type: none">● Oscilloscope● Post Height Adjusting Driver● Alignment tape● Blank tape● M3 Nut Driver	<p>Checking the flatness</p> <ul style="list-style-type: none">● CH-1:PB RF Envelope● CH-2:SW 30Hz● Head Switching Output Point● RF Envelope Output Point	<ul style="list-style-type: none">● Run the blank tape● Play an alignment tape	<ul style="list-style-type: none">● Guide Rollers Precise Adjustment● Switching point● Tracking point● X-Value

Connection Diagram	Waveform Diagram
	 <p>$V_1/V \text{ MAX} \geq 0.7$ $V_2/V \text{ MAX} \geq 0.8$ RF ENVELOPE OUTPUT</p>

Checking / Adjustment Procedure 1) Run the blank tape, check and adjust whether the Roller Guide is curling or creasing tape around the Roller Guide. 2) Check the RF envelope output flatness and adjust the Roller Guide Height while playing an alignment tape. 3) Adjust the head switching point. 4) Check that RF envelope output is maximum when the tracking is at the center click position. 5) Adjust the Tracking Preset and X-Value Adjust with X Adjust.

Fig. C-10

11. Maintenance/Inspection Procedure

(1) Required Maintenance

The recording density of a VCR is much higher than that of an audio tape recorder. VCR components must be very precise, at tolerances of 1/1000mm, to ensure compatibility with other VCRs. If any of these components are worn or dirty, the symptoms will be the same as if the part is defective. To ensure good picture, periodic inspection and maintenance, including replacement of worn out parts and lubrication, are necessary.

(2) Scheduled Maintenance

Schedules for maintenance and inspection are not fixed because they vary greatly according to the way in which the customer uses the VCR, and the environment in which the VCR is used. But, in general home use, a good picture will be maintained if the inspection and maintenance is made every 1,000hours. The table below shows the relation between time used and inspection period.

Table 1

When inspection is necessary Average hours used per day	About 1 year	About 18 months	About 3 years
One hour			
Two hours			
Three hours			

(3) Check before starting repairs

The following faults can be remedied by cleaning and oiling. Check the needed lubrication and the conditions of cleanliness in the unit. Check with the customer to find out how often the unit is used, and then determine that the unit is ready for inspection and maintenance. Check the following parts.

Table 2

Phenomenon	Inspection
Poor S/N, no color	Dirt on video head or worn video head
Tape does not run or tape is slack	Dirt on pressure roller, belt or flywheel belt
Vertical jitter, horizontal jitter	Dirt on video head or in tape transport system
Color beats	Dirt on full-erase head
Low volume or sound distorted	Dirt on audio/control head
Fast forward or rewind is not done or rotation is slow	Dirt on belt

(4) Supplies Required for Inspection and Maintenance

- (1) Greases Kanto G-31(or equivalent)
- (2) Alcohol(or freon)
- (3) Cleaning Patches

5) Maintenance Procedure

5-1) Cleaning

(1) Cleaning video head

First use a cleaning tape. If dirt on head is too stubborn to remove by tape, use the cleaning patch. Coat the cleaning patch with alcohol or freon to the point indicated. Touch the cleaning patch to the head tip and gently turn the head(rotating cylinder) right and left. (Do not move the cleaning patch vertically and make sure that only the buckskin on the cleaning patch comes into contact with the head. Otherwise, the head may be damaged.) Thoroughly dry the head. Then test tape-running. If alcohol or freon remains on the video head, the tape may be damaged when it comes into contact with the head surface.

(2) Cleaning the tape transport system and drive system, etc, by wiping with a cleaning patch wetted with alcohol or freon.

Note:

- ① It is the tape transport system which comes into contact with the running tape. The drive system consists of those parts which move the tape.
- ② Make sure that during cleaning you do not touch the tape transport system with the tip of a screw driver and no force is applied to the system that would cause deforming.

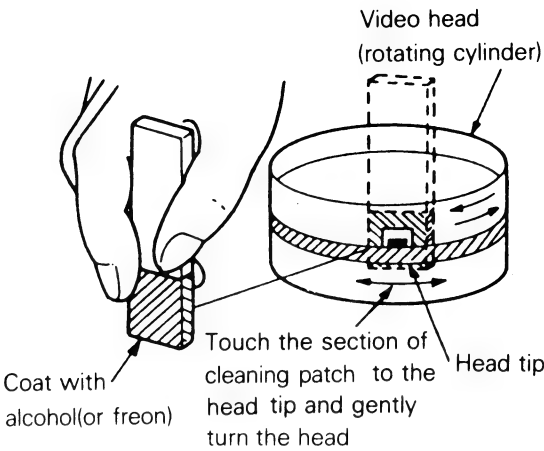


Fig. C-11-1

5-2) Greasing

(1) Greasing guidelines

Apply grease, with a cleaning patch. Do not use excess grease. It may come into contact with the tape transport of drive system. Wipe any excess and clean with cleaning patch wetted in alcohol or freon.

(2) Periodic greasing

Grease specified locations every 5,000hours.



Fig. C-11-2 Tape Transport System

Phenomenon	Inspection	Replace ment	
Color beats	Dirt on full-erase head	○	→ ①
Poor S/N no color	Dirt on video head	○	→ ②
Vertical jitter	Dirt on video head Dirt in tape transport system	○	→ ③
Low volume, Sound distorted	Dirt on audio/control head	○	→ ④
Tape does not run. Tape is slack	Dirt on pinch roller	○	→ ⑤

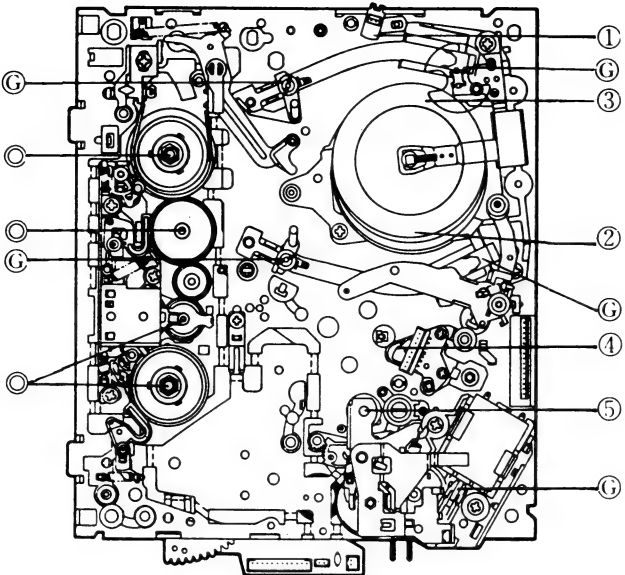


Fig. A-12 Top View of Mechanism

Phenomenon	Inspection Location	Replace ment	
Do not fast forward or rewind, or rotation is slow	Dirt on reel belt	○	→ ⑥
Tape does not run			
Slack tape			

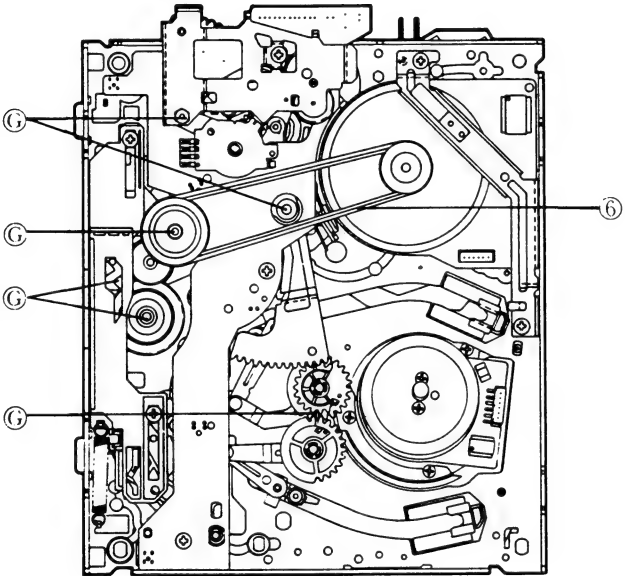


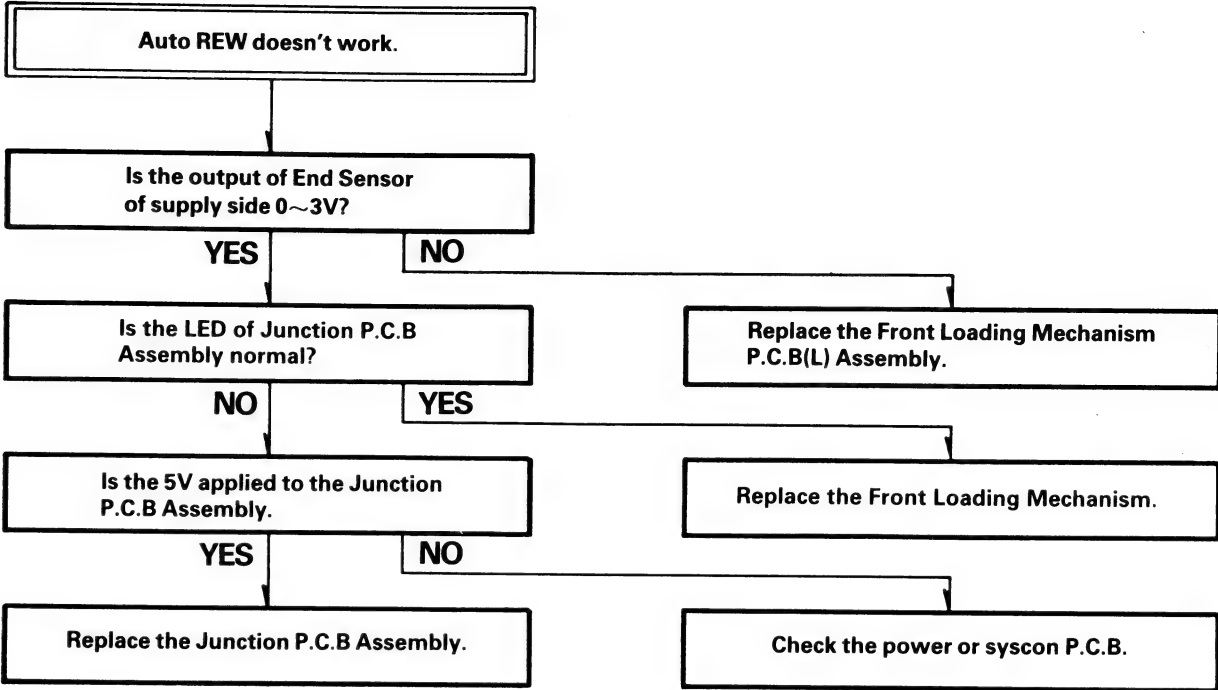
Fig. A-13 Bottom View of Mechanism

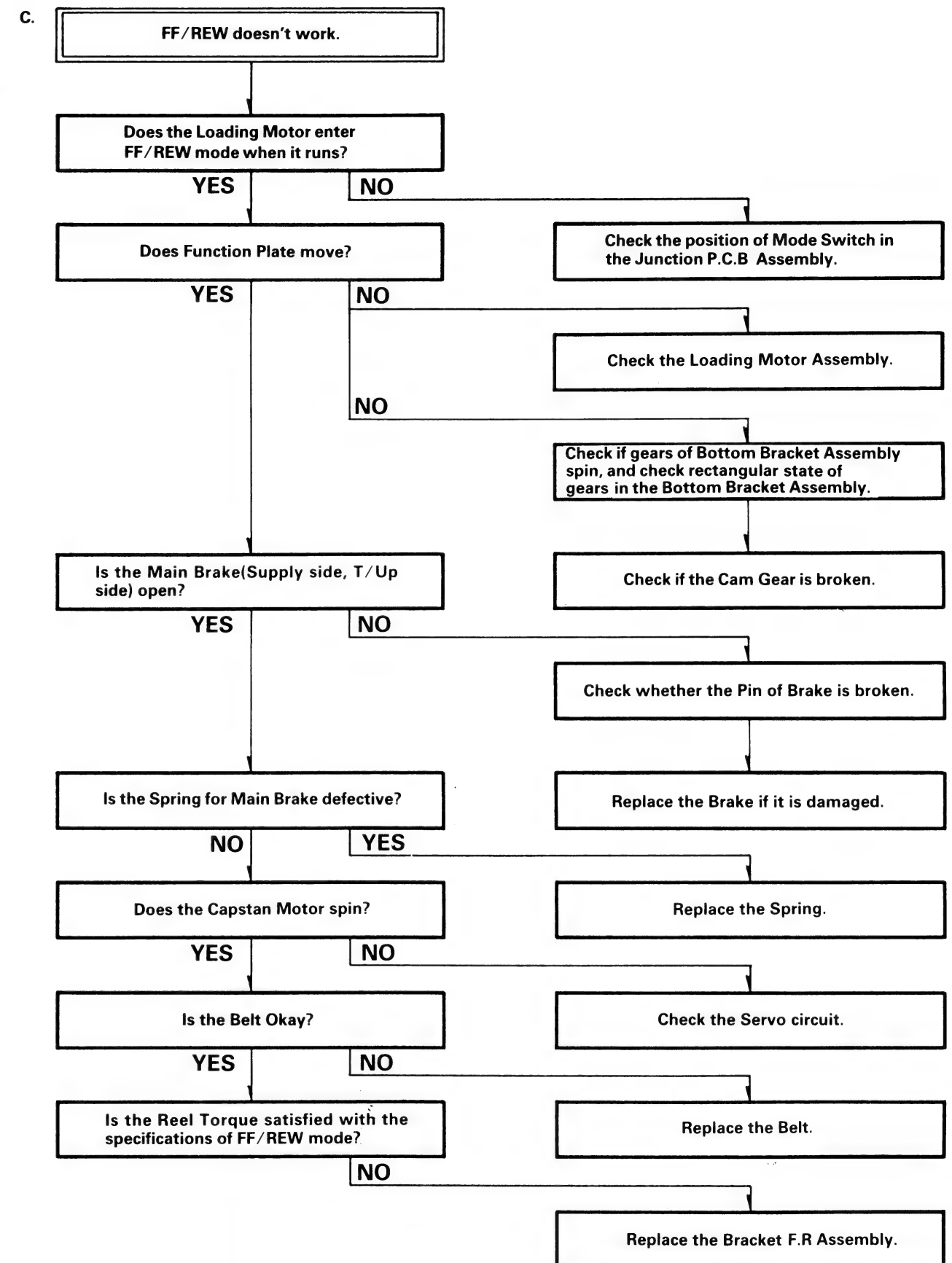
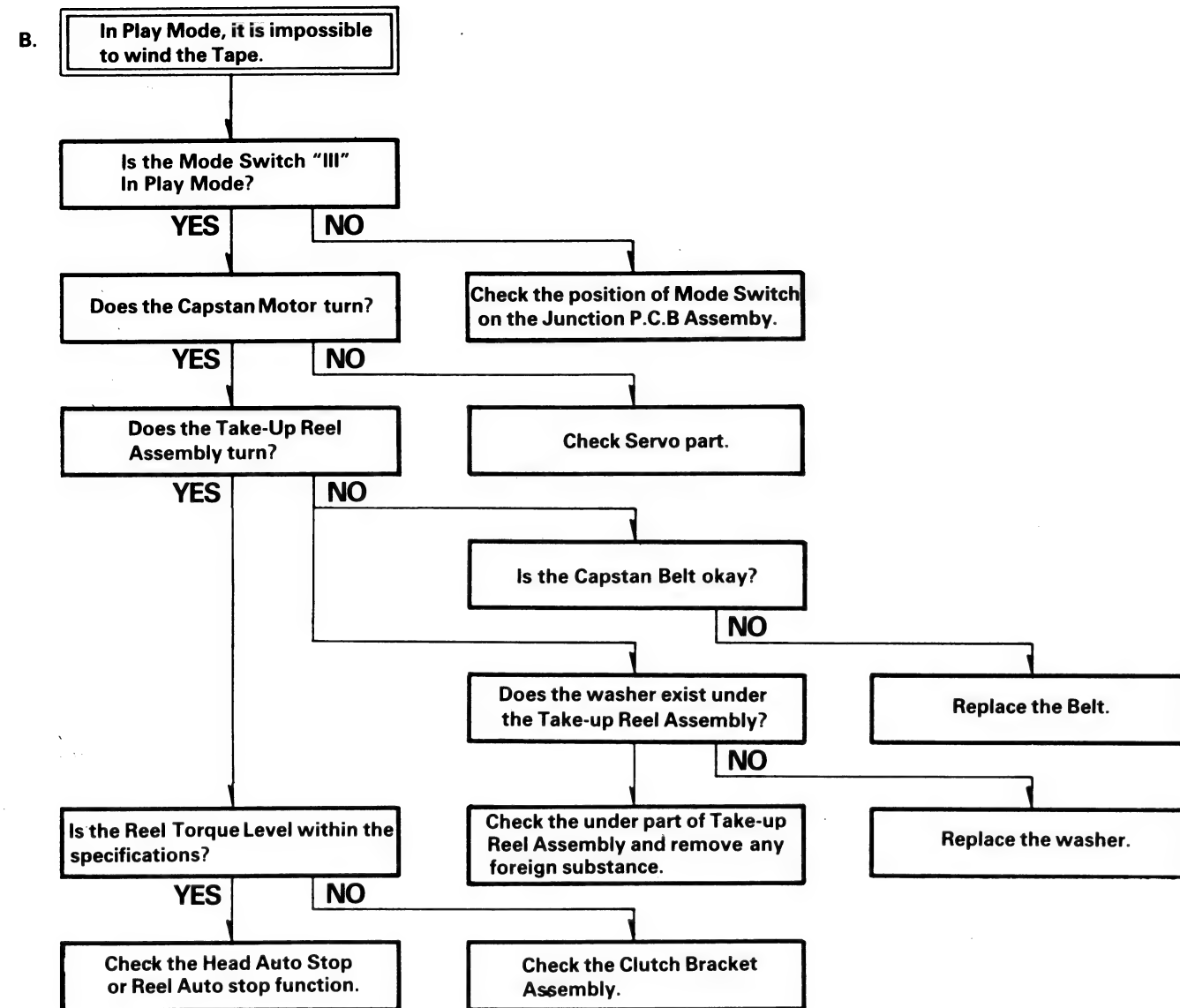
Ⓒ:Grease

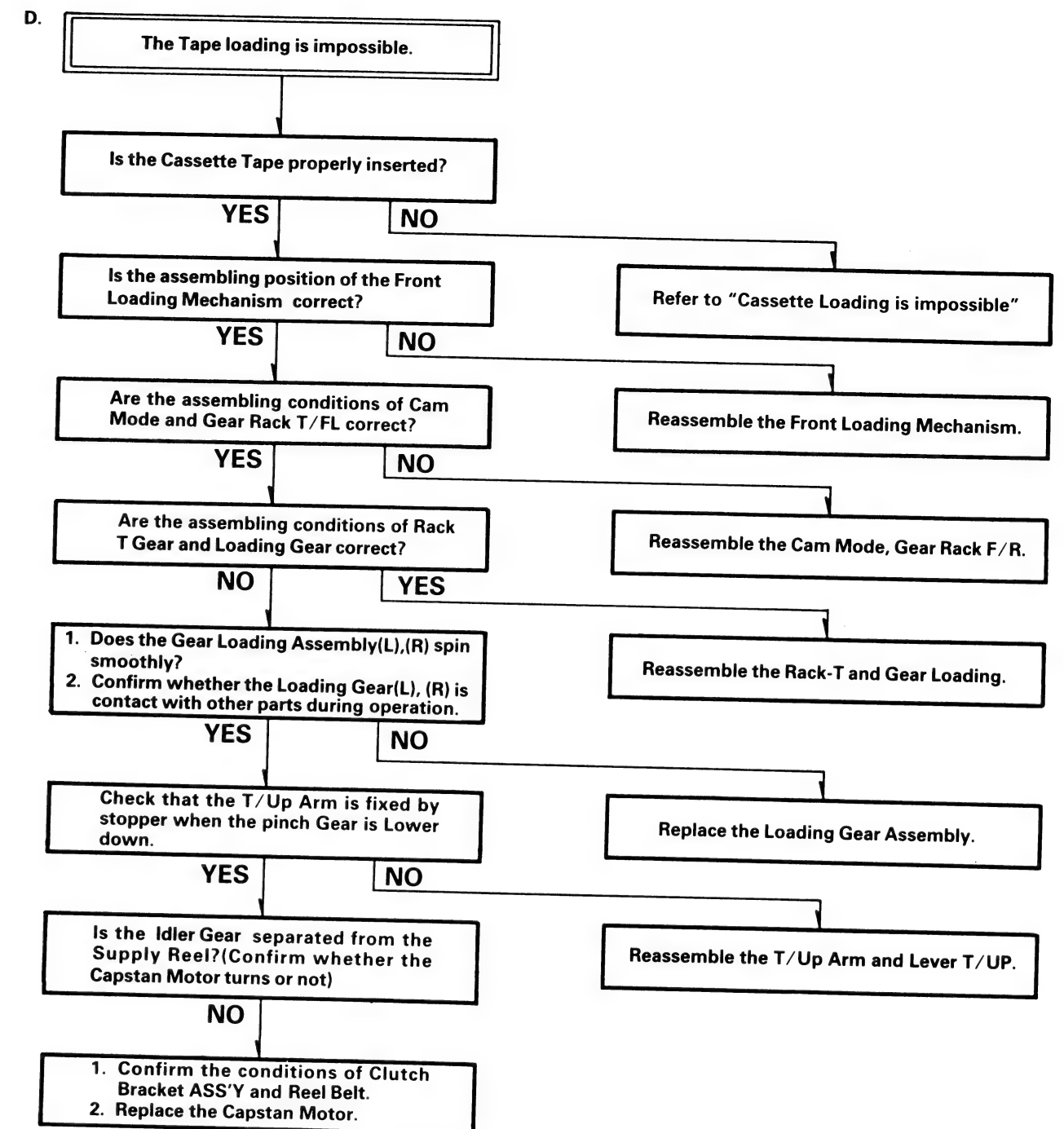
Note:If locations marked with ○ do not operate normally after cleaning, check for wear and replace.
See the EXPLODED VIEWS at the end of this manual as well as the above illustrations for the sections to be lubricated and greased.

MECHANISM TROUBLESHOOTING GUIDE

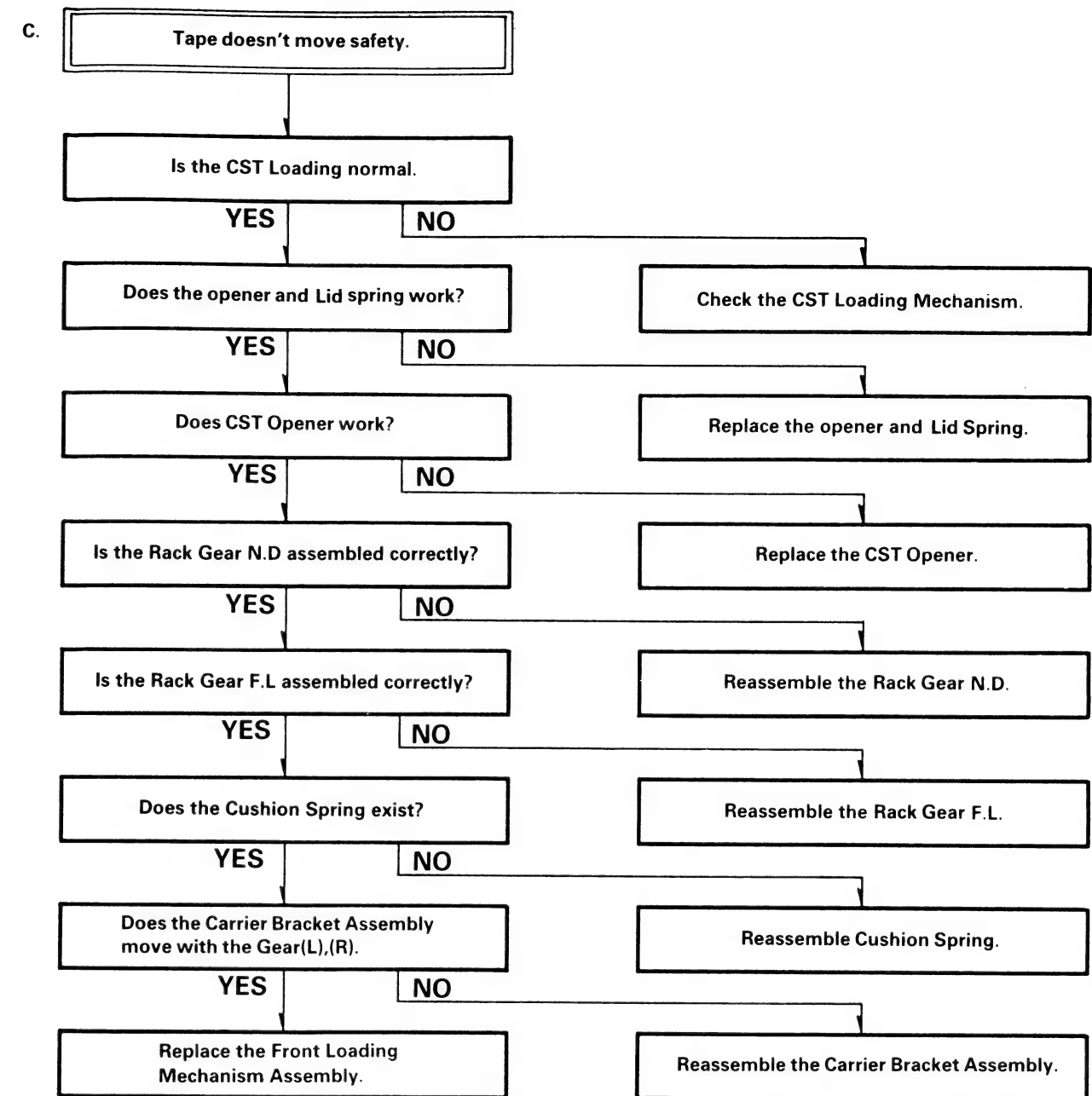
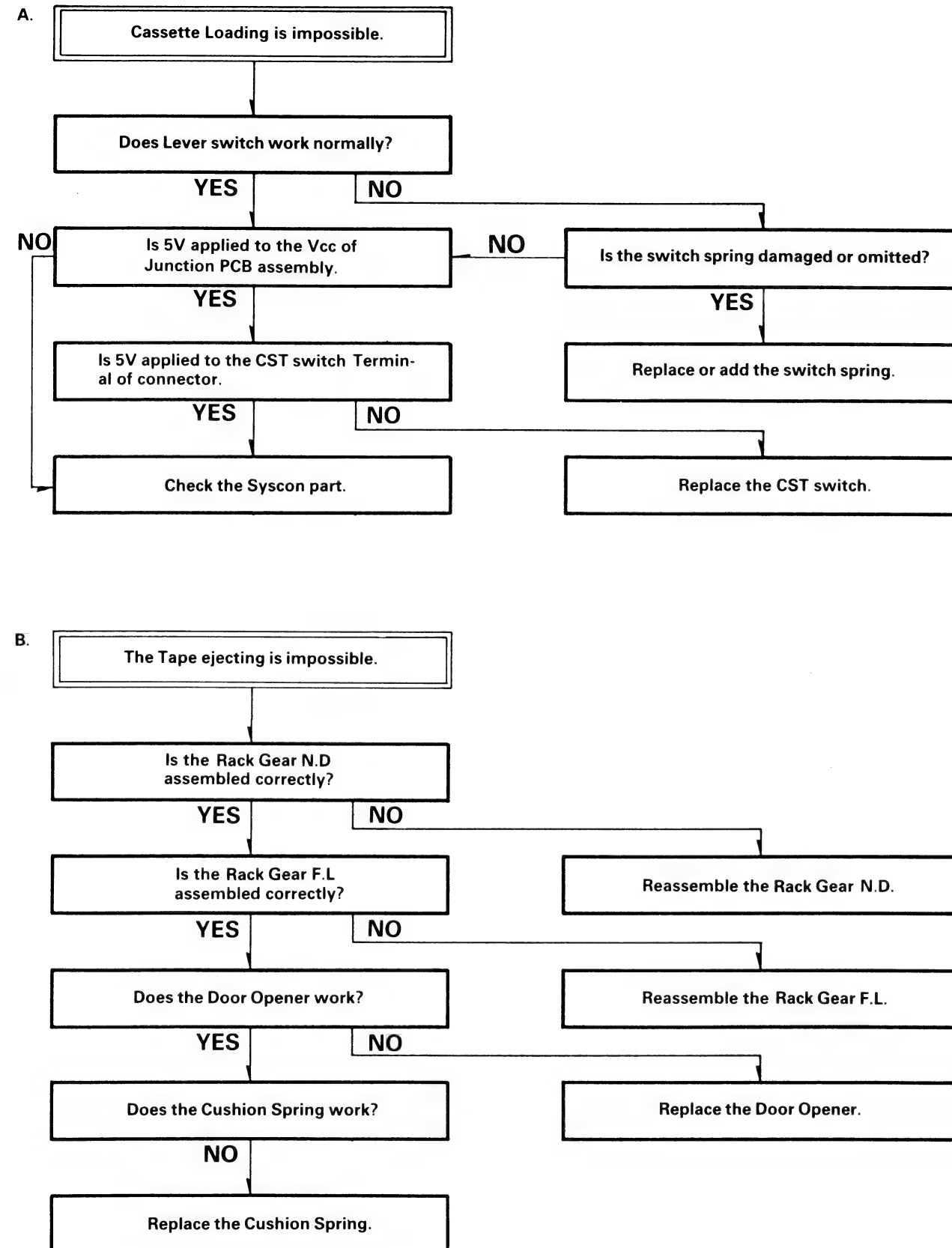
1. Deck Mechanism










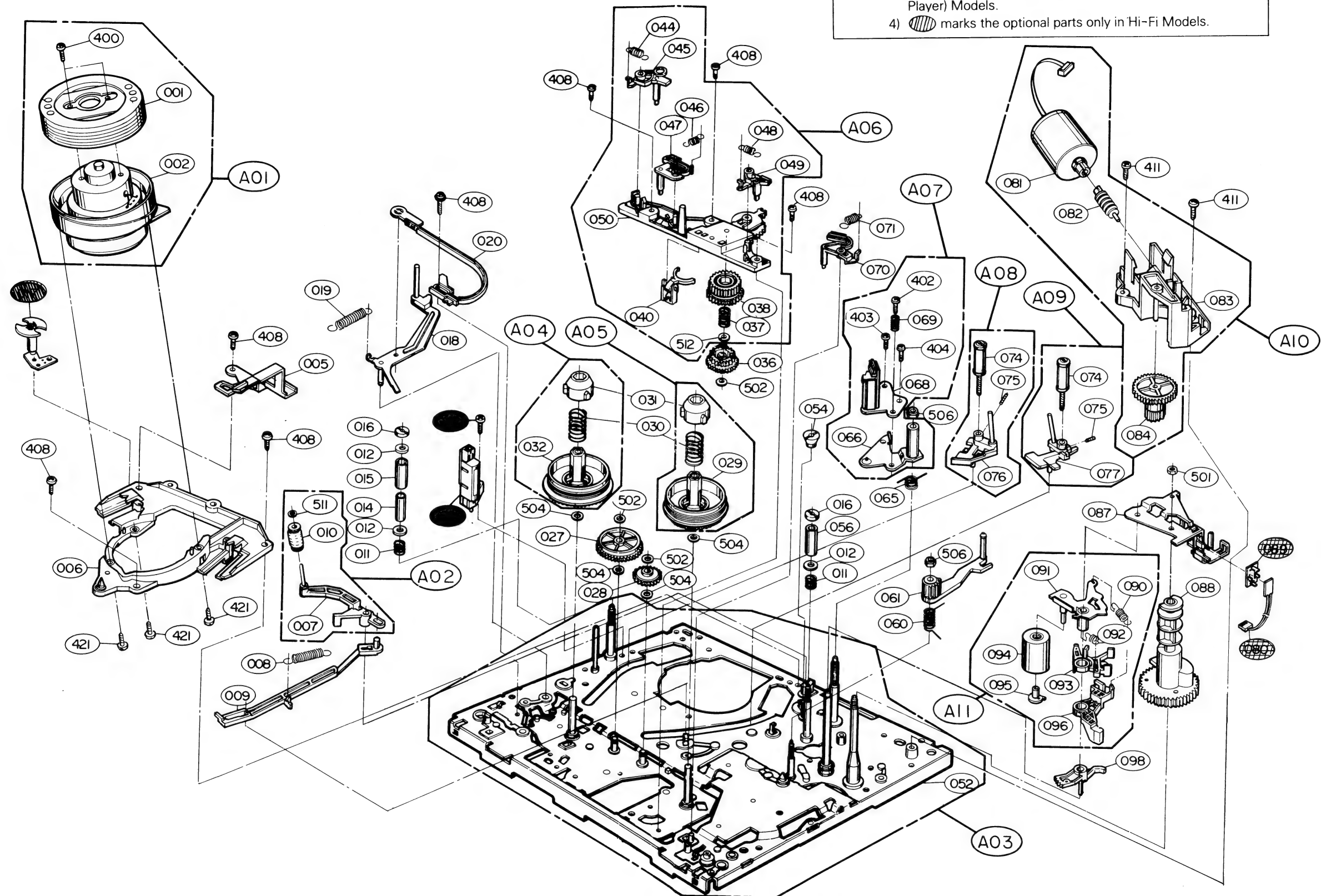
2. Front Loading Mechanism



EXPLODED VIEW

1. Moving Mechanism Section(I)

- NOTE)** 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST" in order to look for the part number of each part.
 2)  marks the optional parts only in VCR(Video Cassette Recorders) Models.
 3)  marks the optional parts only in VCP(Video Cassette Player) Models.
 4)  marks the optional parts only in Hi-Fi Models.



A

B

C

D

E

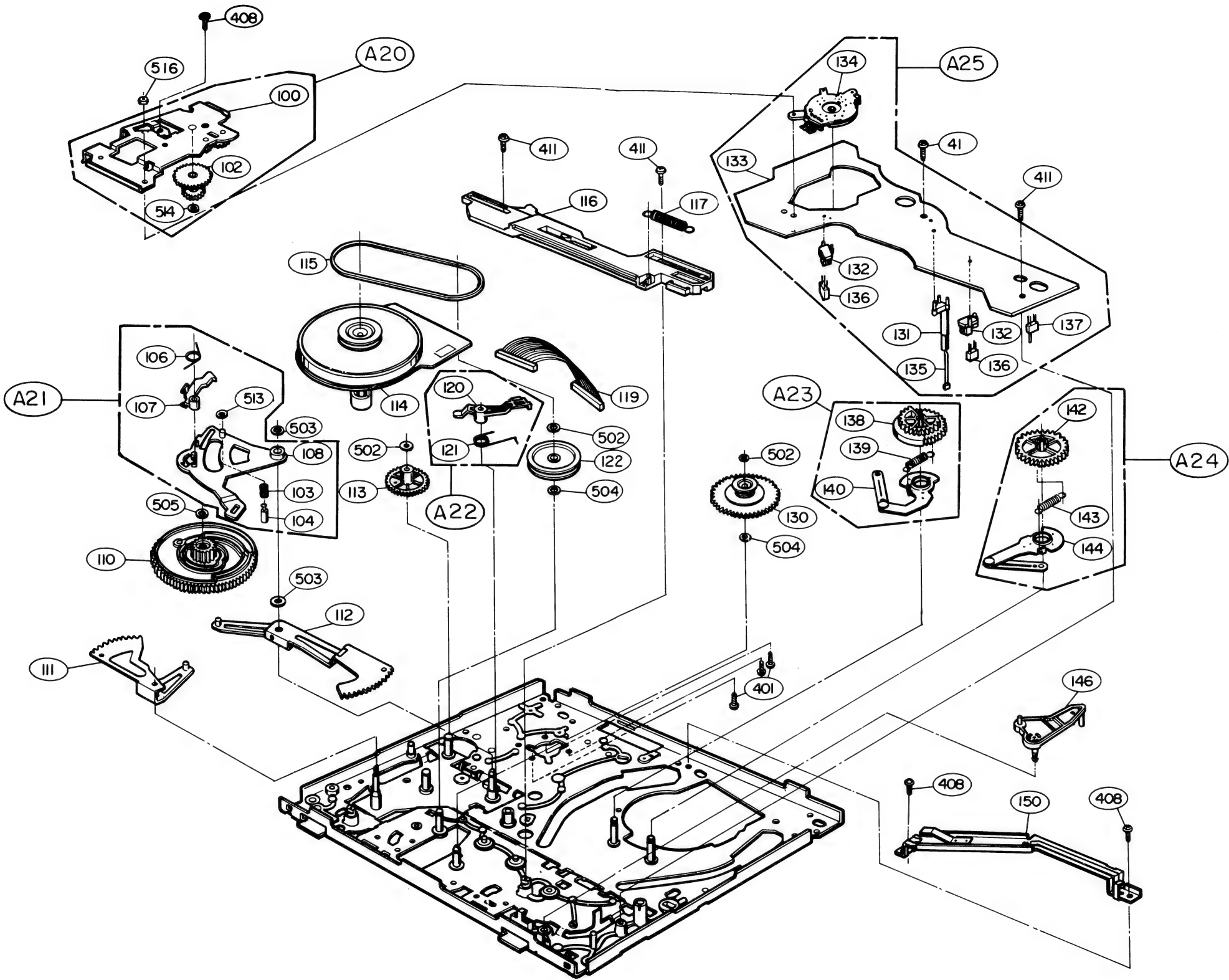
F

G

H

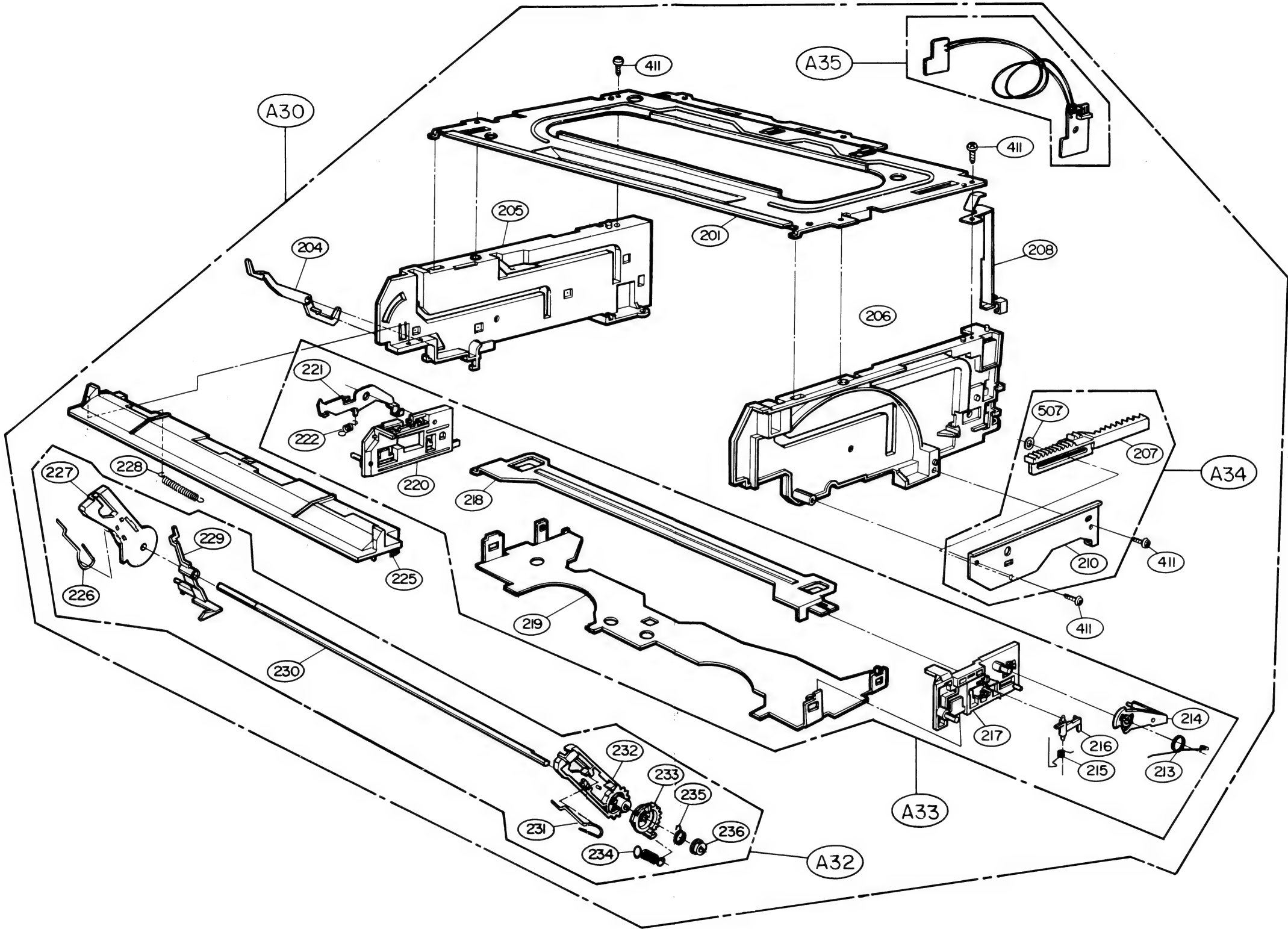
2. Moving Mechanism Section(Ⅱ)

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST"
in order to look for the part number of each part.



3. Front Loading Mechanism Section

NOTE) 1) Refer to "SECTION 5 REPLACEMENT PARTS LIST"
in order to look for the part number of each part.



SECTION 5
REPLACEMENT PARTS LIST
CONTENT

REPLACEMENT PARTS LIST	5-3
● Mechanical Section	5-3
● Cabinet & Main frame Section	5-7
● Packing Accessory Section	5-8
● Remote Control Section	5-8
● Electrical Section	5-9

REPLACEMENT PARTS LIST

• Mechanical Section

RUN-DATE : 92.06.01
NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY PARTS SECTION						
	OR	A00	412-103A	DECK	ASSY D17	NSP NSP
		A01	413-222D	DRUM	ASSY (D17-PAL:D4HD/S)	
		A02	386-296A	ARM	ASSY CL	
		A03	311-005A	CHASSIS ASSY*		
		A03	311-005B	CHASSIS ASSY*		
		A04	456-048A	REEL	D17(WONW00)	
		A05	456-045A	REEL	ASSY S17	
		A06	321-397A	BRACKET	ASSY T17	
		A07	225-228A	BASE	ASSY F/R	
		A08	225-248A	BASE	ASSY A/C	
	OR	A08	225-248B	BASE	ASSY,P2	
		A09	225-249A	BASE	ASSY P2 (W-W)	
	OR	A09	225-249B	BASE	ASSY,P3	
		A10	414-104A	MOTOR	ASSY P3 (W-W)	
		A11	333-209C	LEVER	ASSY LOAD	
		A20	321-401A	BRACKET	LEVER ASSY PINCH	
		A21	333-208A	LEVER	ASSY BOTTOM	
		A22	338-078A	BRAKE	ASSY RAT	
		A23	386-218A	ARM	ASSY CAP	
		A24	386-219A	ARM	ASSY LOAD(R)	
		A25	511-997A	PWB ASSY	ASSY LOAD(L)	
		A30	219-017D	HOUSING	D-17	
		A32	435-257A	GEAR	ASSY D-17	
		A33	321-406A	BRACKET	ASSY DRIVE	
		A34	321-441A	BRACKET	ASSY CARRIER	
		A35	515-106A	PWB ASSY	ASSY SIDE	
					SENSOR	
PARTS SECTION						
	OR	001	413-165D	DRUM	ASSY UPPER(D17-PAL:D4HD/S)	NSP NSP
		002	413-220A	DRUM	ASSY LOWER (D17-4CH)	
		005	225-231A	BASE	ASSY D-BRUSH	
		006	225-220A	BASE	DRUM	
		006	225-220B	BASE	DRUM (W-W)	
		007	386-297A	ARM	SUB ASSY CU	
		008	442-460B	SPRING	CU	
		009	442-459A	SPRING	CL	
		010	386-295A	ARM	CL	
		011	442-161A	SPRING	P14	
	OR	012	384-071A	GUIDE	17	
		013	523-082A	HEAD	FE ,HVFMF0010AK,D-17	
		013	523-082B	HEAD	FE,HVFHF0010AK	
		014	378-017A	SLEEVE	P1	
	OR	015	434-178A	ROLLER	P1	
		015	434-178B	ROLLER	P1	
		016	389-003B	ADJUST	P(4)	
		018	386-205A	ARM	ASSY TENSION	
		019	442-331C	SPRING	TENSION	
		020	328-052B	BAND	ASSY TENSION	
		027	435-243A	GEAR	IDLE(A)	

NSP: Not Service Part						
S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		028	435-244A	GEAR	IDLE(B)	
		029	456-040A	PEEL	T17	
		030	442-341A	SPRING	REEL	NSP
		030	442-341A	SPRING	REEL	NSP
		031	276-068A	CAP	REEL	NSP
		031	276-068A	CAP	REEL	NSP
		032	456-059A	REEL	REEL	NSP
		036	435-240A	GEAR	S17	NSP
		037	442-356A	SPRING	F/R	
		038	435-239A	GEAR	UP/D	NSP
		040	333-201A	LEVER	UP/D	NSP
		044	442-338B	SPRING	ASSY F/R	NSP
		045	338-081A	BRAI E	SSB	NSP
		046	442-337A	SPRING	S-SOFT	NSP
		047	338-080A	BRAI E	SMB	NSP
		048	442-339D	SPRING	ASSY S-MAIN	NSP
		049	338-083A	BRAI E	TSB	NSP
		050	321-396A	BRACKET	ASSY T-SOFT	NSP
		052	313-022A	CHASSIS	SUB ASSY F/R	NSP
		054	339-013A	ADJUST	OUTSERT	NSP
		056	378-018A	SLEEVE	X-ASSY	
		060	442-343A	SPRING	P4	
CF		061	386-279A	ARM	T/UP	
		061	386-279B	ARM	ASSY T/UP	
		065	442-352A	SPRING	ASSY T/UP	
		066	225-219A	BASE	A/C	
		068	523-089A	HEAD	SUB ASSY A/C	NSP
		069	442-362A	SPRING	SUB ASSY A/C	
		070	338-085A	BRAI E	AZIMUTH	
		071	442-344A	SPRING	ASSY T-MAIN	
		074	434-173A	ROLLER	TMB	
		074	434-173A	ROLLER	ASSY GUIDE	
		075	353-054B	SCREW	ASSY GUIDE	
		075	353-054B	SCREW	MINIATURE	
		076	225-226B	BASE	MINIATURE	
		077	225-225B	BASE	SUB ASSY SLALT (L,W-W)	
		081	414-105A	MOTOR	SUB ASSY SLALT (R,W-W)	
		082	457-009A	WORM	SUB ASSY.L	
		083	321-410A	BRACKET	ASSY	
		084	433-023A	WHEEL	SUB ASSY L/M	
		087	321-470A	BRACKET	WORM	
OR		088	435-245A	GEAR	ASSY DEW	
		088	435-245B	GEAR	PINCH	
		090	442-347A	SPRING	PINCH	
		091	386-210A	ARM	PINCH	NSP
		092	442-346A	SPRING	ASSY PINCH	NSP
CF		093	334-050B	STOPPER	STOPPER	NSP
		094	434-181A	ROLLER	PINCH	NSP
		094	434-181B	ROLLER	ASSY PINCH	
		095	276-089A	CAP	ASSY PINCH	
		096	333-203A	LEVER	PINCH	NSP
		098	333-206A	LEVER	PINCH	NSP
		100	321-463A	BRACKET	T/UP	
		102	435-249A	GEAR	SUB ASSY B	NSP
					RAT1	NSP

NSP: Not Service Part						
S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		103	442-356A	SPRING	F-LEVER	NSP
		104	356-208A	PIN	F-LEVER	NSP
		106	442-345A	SPRING	RAT	NSP
		107	333-202A	LEVER	RAT	NSP
		108	333-207A	LEVER	F17	NSP
		110	374-005A	CAM	D17	
		111	435-318A	GEAR	ASSY RACK F/L	
		112	435-291A	GEAR	ASSY RACK T	
		113	435-246A	GEAR	PC	
		114	414-115A	MOTOR	CAPSTAN SVC-102A,D-17	
OR		114	414-121A	MOTOR	CAPSTAN GVC-017B	
		115	452-047A	BELT	CENTER	
		116	256-734A	PLATE	F17	
		117	442-342B	SPRING	FP	
		119	672-400G	CONNECTOR ASSY	6P 85 (8283-8283) D-17	
		120	338-089A	BRAI E	SUB ASSY CAP	
		121	442-353A	SPRING	CAPSTAN	
		122	432-038A	PULLEY	GEAR	
		130	337-005A	CLUTCH	ASSY	
		131	324-643A	HOLDER	LED	
		132	324-642A	HOLDER	R/S	
		133	513-494B	PWB	JUNCTION D-17	NSP
		134	556-133A	SWITCH	MODE	
OR		135	0DL451000AA	DIODE LED	IR SENSOR GL451(LONG) SHARP	
		135	0DL550000AB	DIODE LED	IR SENSOR EL-55L(LONG) KOC	
		136	657-102K	SENSOR	SG-105(REEL) KOC	
		137	556-131A	SWITCH	ESE-105SV1	
		138	435-234A	GEAR	LOAD(R)	
		139	442-350A	SPRING	LOADING	
		140	386-274A	ARM	SUB ASSY (R)	
		142	435-235A	GEAR	LOAD(L)	
		143	442-330B	SPRING	LOADING	
		144	386-273A	ARM	SUB ASSY (L)	
		146	333-218A	LEVER	ASSY A-TEN	
		150	321-527A	BRACKET	ASSY C-GUIDE	
		201	256-934B	PLATE	TOP	
		204	465-026A	OPENER	DOOR	
		205	321-517B	BRACKET	LEFT (D17)	
		206	321-518A	BRACKET	RIGHT (D17)	
		207	435-278A	GEAR	RACK N/D	
		208	256-910A	PLATE	GND TOP	
		210	321-440A	BRACKET	SIDE	
		213	442-351A	SPRING	OC	NSP
		214	465-028A	OPENER	CST	NSP
		215	442-357A	SPRING	RID	NSP
		216	465-027A	OPENER	RID	NSP
		217	324-647A	HOLDER	R	NSP
		218	321-407A	BRACKET	SUPPORT	NSP
		219	321-405A	BRACKET	CARRIER	NSP
		220	324-646A	HOLDER	L	NSP
		221	333-210A	LEVER	DT	NSP
		222	442-358B	SPRING	DT	NSP
		225	384-074A	GUIDE	CST	
		226	442-352A	SPRING	L	NSP

to
1
11111

NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		227	435-254A	GEAR	L	
		228	442-350A	SPRING	S/W	NSP
		229	333-204A	LEVER	S/W	
		230	423-368A	SHAFT	D	NSP
		231	442-353A	SPRING	R	NSP
		232	435-255A	GEAR	R	NSP
		233	435-256A	GEAR	C	NSP
		234	442-359C	SPRING	CUSHION (D17F/L)	NSP
		235	442-354A	SPRING	CC	NSP
		236	276-086A	CAP	DRIVE	NSP
SCREWS						
		400	1MDC0302418	PAN HEAD MACHINE SCREW P/WASH+	D 3.0 L 8.0 MSWR3/FZY	
		401	1MPK0261418	PAN HEAD MACHINE SCREW +,-	D 2.6 L 4.0 MSWR3/FZY	
		402	353-021D	SCREW	SPECIAL	
		403	1MPK0302418	PAN HEAD MACHINE SCREW +,-	D 3.0 L 8.0 MSWR3/FZY	
		404	353-048C	SCREW	CONE POINT 3X10	
		408	1MBC0302418	BINDING HEAD MACHINE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
		411	353-046B	SCREW	SPECIAL (3X8 FZMY)	
		412	1MBC0302818	BINDING HEAD MACHINE SCREW +	D 3.0 L 12 MSWR3/FZY	
		421	1MPC0302618	PAN HEAD MACHINE SCREW +	D3.0 L10.0,MSWR3/FZY	
		425	1SRF0302418	BRAIZER HD TAP TITE SCREW +	D 3.0 L 8.0 MSWR3/FZY	
		426	1MPC0302018	PAN HEAD MACHINE SCREW +	D 3.0 L 6.0 MSWR3/FZY	
NUT, WASHER						
		502	354-020D	WASHER	STOPPER	
		503	354-020E	WASHER	STOPPER	
		504	354-001B	WASHER	P.S D3.1XD6X0.5T	
		505	354-080E	WASHER	STOPPER	
		506	352-025A	NUT	NYLON M3	
		507	354-020J	WASHER	STOPPER(2.6X4.8X0.5)	
		512	354-080E	WASHER	STOPPER	NSP
		513	354-080A	WASHER	STOPPER	NSP
		514	354-080B	WASHER	STOPPER	NSP
		516	334-058A	STOPPER	A/C TERMINAL	

● Cabinet & Mainframe Section

RUN-DATE : 92.06.01
NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY PARTS SECTION						
		A43	258-453M	PANEL	ASSY FRONT	
		A44	232-184D	BOARD ASSY	POWER 220V/50HZ	
		A45	232-187A	BOARD ASSY	PRE-AMP 4HEAD	
		A46	232-185W	BOARD ASSY	MAIN	
PARTS SECTION						
		250	217-323B	CASE	TOP (SGM-6216)	
		260	315-222A	FRAME	MAIN	NSP
		261	327-013A	CLAMP	CORD	NSP
		265	477-034B	RUBBER	BUMPON	NSP
		268	256-887A	PLATE	FRAME GND	NSP
		269	321-526A	BRACKET	HOUSING	
		275	324-697A	HOLDER	DIGITRON	
		276	273-145A	KNOB	SLIDE	
		280	258-405C	PANEL	FRONT (6216)	NSP
		281	324-698A	HOLDER	LED	
		282	221-516L	COVER	DOOR	NSP
		283	226-041G	DOOR	CST	
		284	442-370A	SPRING	DOOR	
		285	236-281A	WINDOW	DECORATION	NSP
		286	321-480A	BRACKET	DOOR	
		287	256-831A	PLATE	FUNCTION (A)	NSP
		288	256-832A	PLATE	FUNCTION (B)	NSP
		289	435-233B	GEAR	DAMPER	
		290	275-406A	BUTTON	PROGRAM	NSP
		291	256-830A	PLATE	DOOR (AL)	NSP
		292	524-007K	MAGNET	ASSY	NSP
		293	273-146A	KNOB	ROTARY	
		294	275-405A	BUTTON	POWER	NSP
		295	236-282A	WINDOW	LED	NSP
		296	275-416A	BUTTON	TIMER (B)	NSP
		297	275-407A	BUTTON	TIMER (A)	NSP
		298	275-404A	BUTTON	FUNCTION	NSP
	*	300	681-035A	CORD	POWER PAL W/STOPPER	
		301	321-462A	BRACKET	TR	
		303	256-886A	PLATE	HEAT SINK	
		304	221-407A	COVER	FUSE	
		310	217-313A	CASE	PRE-AMP	NSP
		311	221-638A	COVER	PRE-AMP "B"	NSP
		312	221-694A	COVER	PRE-AMP "A"	NSP
		320	258-406A	PANEL	DISTRIBUTOR	
		321	256-515N	PLATE	DISTRIBUTOR	NSP
		324	573-011A	SOCKET	SR-21A1-3	
		330	221-633A	COVER	BOTTOM	
SCREWS						
		451	353-046C	SCREW	(3X10 FZMY)	
		451	353-046C	SCREW	(3X10 FZMY)	
		452	353-051A	SCREW	SPECIAL	
		457	353-051B	SCREW	SPECIAL	
		461	353-046B	SCREW	SPECIAL (3X8 FZMY)	
		462	353-136A	SCREW	SPECIAL (FBK)	

● Packing Accessory Section

RUN-DATE : 92.06.01
NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		801	480-381C	INSTRUCTION ASSY	R-C400W SET1	NSP
		802	288-303D	BOX CARTON	R-C400W SET1	
		803	283-159A	PACKING	R-C40P VD1	
		804	291-002B	SHEET CUSHION		
		808	554-002C	BATTERY	1.5V AAM UM-3 LOL 1PAIR	
		810	861-505B	CABLE SET ASSY	RF-CABLE, ASSY, PAL	

- **Remote Control Section**

RUN-DATE : 92.06.01
NSP: Not Service Part

S	AL	LOCA. NO	PART NO(GS)	DESCRIPTION	SPECIFICATION	REMARKS
		900	597-059F	REMOTE CONTROL	ASSY	
		901	256-941F	PLATE	TOP R/C	NSP
		902	221-626A	COVER	TOP R/C	NCP
		903	515-310B	PWB ASSY	R/C(1Y/8P,40POS.W/O VPS.SP/LP	NSP
		904	556-161E	SWITCH	RUBBER	NSP
		905	236-328A	WINDOW	LCD	NSP
		906	236-327A	WINDOW	FILTER	NCP
		907	221-627A	COVER	BOTTOM R/C	NSP
		908	221-623A	COVER	BATTERY R/C	
		909	442-442A	SPRING	BAT.-C	NSP
		910	442-441A	SPRING	BAT.-B	NSP
		911	442-440A	SPRING	BAT.-A	NSP

- **Electrical Section**

RUN-DATE : 92.06.01

CAUTION: The * marks in the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the SAFETY PRECAUTIONS and SERVICING PRECAUTIONS in this manual. Do not degrade the safety of the unit through improper servicing.

Tolerance

Symbol	C	J	K	M	N	Z	P	A
%	±2	±5	±10	±20	±30	±80 -20	+100 -10	+100 -10

CC, CJ, CK : Capacitor, Ceramic
DE : Capacitor, Electrolytic
CQ : Capacitor, Polyester

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION	S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
CAPACITOR									
		C001	OCE4764F638	47M SRA/SS 16V M FM5 TP(5)			C106	OCE4766F630	47M SMS 16V M FM5
		C002	OCN1030F678	0.01M 16V M Y TA26			C107	OCK2230K940	0.022M 50V Z F S
		C003	OCN1030F678	0.01M 16V M Y TA26			C108	OCE4766F630	47M SMS 16V M FM5
		C004	OCN1030F678	0.01M 16V M Y TA26			C109	OCE4766F630	47M SMS 16V M FM5
		C005	OCN0300K015	3P 50V C NPO TS			C110	OCK2230K940	0.022M 50V Z F S
		C006	OCN1030F678	0.01M 16V M Y TA26			C112	OCE4766F630	47M SMS 16V M FM5
		C007	OCX1500K408	15P 50V J SL TA26			C113	OCE4766F630	47M SMS 16V M FM5
		C008	OCN1030F678	0.01M 16V M Y TA26			C116	OCE4766F630	47M SMS 16V M FM5
		C009	OCN3310K518	330P 50V K B TA26			C117	OCE4766F630	47M SMS 16V M FM5
		C010	OCN3310K518	330P 50V K B TA26			C118	OCE4766F630	47M SMS 16V M FM5
		C011	OCN1030F678	0.01M 16V M Y TA26			C119	OCK2230K940	0.022M 50V Z F S
		C012	OCN1030F678	0.01M 16V M Y TA26			C120	OCK2230K940	0.022M 50V Z F S
		C013	OCE1044K638	0.1M SRA 50V M FM5 TP(5)			C121	OCE1076L610	100M SMS 63V M FM5
		C014	OCN1030F678	0.01M 16V M Y TA26			C122	OCK2230K940	0.022M 50V Z F S
		C015	OCX3900K408	39P 50V J SL TA26			C123	OCK2230K940	0.022M 50V Z F S
		C016	OCE4764F638	47M SRA/SS 16V M FM5 TP(5)			C124	OCE1076L610	100M SMS 63V M FM5
		C017	OCN1030F678	0.01M 16V M Y TA26			C125	624-018A	LINE DE7100 FZ 472P VA1-KC
		C019	OCX3300K408	33P 50V J SL TA26			C126	624-018A	LINE DE7100 FZ 472P VA1-KC
		C020	OCN2230H948	0.022M 25V Z F TA26			C131	OCE4766K630	47M SMS 50V M FM5
		C021	OCX3900K408	39P 50V J SL TA26			C132	OCE4766K630	47M SMS 50V M FM5
		C022	OCX2200K408	22P 50V J SL TP26			C201	OCQ4731N409	0.047U 100V J POLY TP
		C023	OCE4764F638	47M SRA/SS 16V M FM5 TP(5)			C202	OCQ4731N409	0.047U 100V J POLY TP
		C024	OCN1030F678	0.01M 16V M Y TA26			C203	OCE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C025	OCN2230H948	0.022M 25V Z F TA26			C204	OCE1066H638	10M SMS 25V M FM5 TP
		C026	OCE2244K638	0.22M SRA 50V M FM5 TP(5)			C205	OCE1066H638	10M SMS 25V M FM5 TP
		C027	OCN0500K015	5P 50V C NPO TR			C206	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C028	OCX1000K408	10P 50V J SL TA26			C207	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C029	OCE2244K638	0.22M SRA 50V M FM5 TP(5)			C208	OCE1051K636	1.0U SM 50V M FM5 BP TP(D)
		C030	OCN2230H948	0.022M 25V Z F TA26			C209	OCQ1221N409	0.0012U 100V J POLY TP
		C031	OCN2230H948	0.022M 25V Z F TA26			C210	OCQ1021N409	0.001U 100V J POLY TP
		C032	OCE2244K638	0.22M SRA 50V M FM5 TP(5)			C211	OCE4766H638	47M SMS 25V M FM5 TP5
		C033	OCX3300K408	33P 50V J SL TA26			C212	OCE1066H638	10M SMS 25V M FM5 TP
		C034	OCX1500K408	15P 50V J SL TA26			C213	OCN3310K518	330P 50V K B TA26
		C036	OCE2244K638	0.22M SRA 50V M FM5 TP(5)			C214	OCN1510K518	150P 50V K B TA26
		C037	OCN2230H948	0.022M 25V Z F TA26			C215	OCE4756K638	4.7M SMS 50V M FM5 TP(5)
		C038	OCN1030F678	0.01M 16V M Y TA26			C216	OCN1010K518	100P 50V K B TA26
		C039	OCN1030F678	0.01M 16V M Y TA26			C217	OCN1010K518	100P 50V K B TA26
		C101	OCK2230K940	0.022M 50V Z F S			C218	OCE1076F638	100M SMS 16V M FM5 TP(5)

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		C227	OCQ2231N409	0.022U 100V J POLY TP
		C228	OCQ2231N409	0.022U 100V J POLY TP
		C229	OCE1076F638	100M SMS 16V M FMS TP(5)
		C230	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C231	OCE1046K638	0.1M SMS 50V M FMS TP(5)
		C232	OCQ1021N409	0.001U 100V J POLY TP
		C233	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C234	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C235	OCE4746K638	0.47M SMS 50V M TP(5)
		C236	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C237	OCK4730K945	0.047U 50V Z F TS
		C238	OCQ4731N409	0.047U 100V J POLY TP
		C239	OCN1030F678	0.01M 16V M Y TA26
		C240	OCN1030F678	0.01M 16V M Y TA26
		C241	OCQ2221N409	0.0022U 100V J POLY TP
		C242	OCK4730K945	0.047U 50V Z F TS
		C301	OCE4766F638	47M SMS 16V M FMS TP5
		C302	OCX5600K408	56P 50V J SL TA26
		C303	OCX6800K408	68P 50V J SL TA26
		C304	OCN1030F678	0.01M 16V M Y TA26
		C305	OCN1030F678	0.01M 16V M Y TA26
		C306	OCE3356K638	3.3M SMS 50V M FMS TP(5)
		C307	OCE4756K638	4.7M SMS 50V M FMS TP(5)
		C308	OCN2230H948	0.022M 25V Z F TA26
		C309	OCE4766F638	47M SMS 16V M FMS TP5
		C312	OCE4766F638	47M SMS 16V M FMS TP5
		C313	OCN1030F678	0.01M 16V M Y TA26
		C314	OCN1030F678	0.01M 16V M Y TA26
		C315	OCE4766F638	47M SMS 16V M FMS TP5
		C316	OCN1030F678	0.01M 16V M Y TA26
		C317	OCN1030F678	0.01M 16V M Y TA26
		C318	OCE4766F638	47M SMS 16V M FMS TP5
		C319	OCX1500K408	15P 50V J SL TA26
		C320	OCE4766F638	47M SMS 16V M FMS TP5
		C321	OCX2400K408	24P 50V J SL TA26
		C322	OCE4766F638	47M SMS 16V M FMS TP5
		C323	OCN1030F678	0.01M 16V M Y TA26
		C324	OCE1076F638	100M SMS 16V M FMS TP(5)
		C325	OCE3346K638	0.33M SMS 50V M FMS TP(5)
		C326	OCE2266H638	22M SMS 25V M FMS TP5
		C327	OCE1066H638	10M SMS 25V M FMS TP
		C328	OCN1030F678	0.01M 16V M Y TA26
		C329	OCE4756K638	4.7M SMS 50V M FMS TP(5)
		C330	OCN1030F678	0.01M 16V M Y TA26
		C331	OCE4766F638	47M SMS 16V M FMS TP5
		C332	OCX2400K408	24P 50V J SL TA26
		C333	OCN8200K518	82PF 50V K B TA26
		C334	OCX2400K408	24P 50V J SL TA26
		C335	OCE3366F638	33M SMS 16V M FMS TP(5)
		C336	OCN1030F678	0.01M 16V M Y TA26
		C337	OCN1030F678	0.01M 16V M Y TA26
		C338	OCX6800K408	68P 50V J SL TA26
		C339	OCE4766F638	47M SMS 16V M FMS TP5
		C340	OCN1030F678	0.01M 16V M Y TA26
		C341	OCE4766F638	47M SMS 16V M FMS TP5
		C342	OCN1030F678	0.01M 16V M Y TA26
		C343	OCN1030F678	0.01M 16V M Y TA26
		C345	OCX6800K408	68P 50V J SL TA26
		C346	OCE1066H638	10M SMS 25V M FMS TP
		C347	OCE4774F638	470M SRA 16V M FMS TP(5)
		C348	OCE4774F638	470M SRA 16V M FMS TP(5)
		C350	OCE4766F638	47M SMS 16V M FMS TP5
		C351	OCE4766F638	47M SMS 16V M FMS TP5
		C352	OCN1030F678	0.01M 16V M Y TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		C354	OCN1030F678	0.01M 16V M Y TA26
		C355	OCE3346K638	0.33M SMS 50V M FMS TP(5)
		C356	OCQ5631N509	0.056U 100V K POLY TP
		C4F1	OCX0100K608	1.0P 50V M SL TA(26)
		C4L1	OCQ8231N409	0.082U 100V J POLY TP
		C4L2	OCQ1521N409	0.0015U 100V J POLY TP
		C401	OCE4766F638	47M SMS 16V M FMS TP5
		C402	OCQ2231N409	0.022U 100V J POLY TP
		C404	OCN3910K518	390P 50V K B TA26
		C406	OCE1066H638	10M SMS 25V M FMS TP
		C407	OCQ1031N409	0.01U 100V J POLY TP
		C408	OCE1066H638	10M SMS 25V M FMS TP
		C409	OCE3364F638	33M SRA 16V M FMS TP(5)
		C410	OCQ1021N409	0.001U 100V J POLY TP
		C411	OCE1066H638	10M SMS 25V M FMS TP
		C412	OCE1066H638	10M SMS 25V M FMS TP
		C413	OCE4766F638	47M SMS 16V M FMS TP5
		C415	OCE4766F638	47M SMS 16V M FMS TP5
		C416	OCE1066H638	10M SMS 25V M FMS TP
		C417	OCQ1231N409	0.012U 100V J POLY TP
		C419	OCE4756K638	4.7M SMS 50V M FMS TP(5)
		C420	OCQ1221N409	0.0012U 100V J POLY TP
		C421	OCE1066H638	10M SMS 25V M FMS TP
		C422	OCE1066H638	10M SMS 25V M FMS TP
		C423	OCE1066H638	10M SMS 25V M FMS TP
		C426	OCQ1031N409	0.01U 100V J POLY TP
		C427	OCQ1031N409	0.01U 100V J POLY TP
		C428	OCQ6831N409	0.068U 100V J POLY TP
		C430	OCN2210K518	220P 50V K B TA26
		C431	OCQ2231N409	0.022U 100V J POLY TP
		C432	OCE4766F638	47M SMS 16V M FMS TP5
		C433	OCE2266F638	22M SMS 16V M FMS TP5
		C435	OCE2246K638	0.22M SMS 50V M FMS TP(5)
		C501	OCE2266F636	22M SMS 16V M FMS BP TP(D)
		C502	OCN1020K518	1000P 50V K B TA26
		C503	OCN1020K518	1000P 50V K B TA26
		C504	OCN2230H948	0.022M 25V Z F TA26
		C505	OCN2230H948	0.022M 25V Z F TA26
		C506	OCN2230H948	0.022M 25V Z F TA26
		C507	OCN1030F678	0.01M 16V M Y TA26
		C508	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C509	OCN1030F678	0.01M 16V M Y TA26
		C510	OCN1030F678	0.01M 16V M Y TA26
		C511	OCN1030F678	0.01M 16V M Y TA26
		C512	OCE4766F638	47M SMS 16V M FMS TP5
		C513	OCE4766F638	47M SMS 16V M FMS TP5
		C514	OCE4766F638	47M SMS 16V M FMS TP5
		C515	OCE4766F638	47M SMS 16V M FMS TP5
		C516	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C517	OCE4774F638	470M SRA 16V M FMS TP(5)
		C601	624-070B	ACE CAP.AC310G473Z5R5 BULK
		C602	OCQ2400K412	24P 50V J NPO F
		C603	OCQ2400K412	24P 50V J NPO F
		C604	OCE2266F630	22M SMS 16V M FMS
		C605	OCE4766F630	47M SMS 16V M FMS
		C606	OCE4766F630	47M SMS 16V M FMS
		C607	OCN1030F678	0.01M 16V M Y TA26
		C608	OCE4746K630	0.47M SMS 50V M FMS
		C701	OCN1030F678	0.01M 16V M Y TA26
		C702	OCE4766F638	47M SMS 16V M FMS TP5
		C703	OCN1030F678	0.01M 16V M Y TA26
		C706	OCX4700K408	47P 50V J SL TA26
		C707	OCX4700K408	47P 50V J SL TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		C708	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C709	OCE2256K638	2.2M SMS 50V M FMS TP(5)
		C710	OCN3310K518	330P 50V K B TA26
		C711	OCN1030F678	0.01M 16V M Y TA26
		C712	OCN1030F678	0.01M 16V M Y TA26
		C713	OCE1076F638	100M SMS 16V M FMS TP(5)
		C714	OCQ1031N409	0.01U 100V J POLY TP
		C715	OCN1810K518	180P 50V K B TA26
		C716	OCN1030F678	0.01M 16V M Y TA26
		C717	OCE1076F638	100M SMS 16V M FMS TP(5)
		C718	OCE4766F638	47M SMS 16V M FMS TP5
		C719	OCN1030F678	0.01M 16V M Y TA26
		C720	OCX3300K408	33P 50V J SL TA26
		C721	OCX2700K408	27P 50V J SL TA26
		C723	OCE2256K638	2.2M SMS 50V M FMS TP(5)
		C724	OCE2256K638	2.2M SMS 50V M FMS TP(5)
		C725	OCQ6821N409	0.0068U 100V J POLY TP
		C726	OCQ4721N409	0.0047U 100V J POLY TP
		C727	OCN1030F678	0.01M 16V M Y TA26
		C728	OCE4766F638	47M SMS 16V M FMS TP5
		C729	OCN1030F678	0.01M 16V M Y TA26
		C730	OCE4766F638	47M SMS 16V M FMS TP5
		C731	OCN4710K518	470P 50V K B TA26
		C732	OCN4710K518	470P 50V K B TA26
		C733	OCN4710K518	470P 50V K B TA26
		C735	OCE1066H638	10M SMS 25V M FMS TP
		C736	OCE1066H638	10M SMS 25V M FMS TP
		C737	OCQ8211N449	820P 100V J PYLN TP
		C738	OCN1030F678	0.01M 16V M Y TA26
		C739	OCE4766F638	47M SMS 16V M FMS TP5
		C740	OCX4700K408	47P 50V J SL TA26
		C741	OCQ4731N409	0.047U 100V J POLY TP
		C901	OCN2230H948	0.022M 25V Z F TA26
		C902	OCE4766F638	47M SMS 16V M FMS TP5
		C903	OCX4700K408	47P 50V J SL TA26
		C904	OCX2400K408	24P 50V J SL TA26
		C905	OCN1020K518	1000P 50V K B TA26
		C906	OCE1046K638	0.1M SMS 50V M FMS TP(5)
		C907	OCE4756K638	4.7M SMS 50V M FMS TP(5)
		C908	OCE4766F638	47M SMS 16V M FMS TP5
		C909	OCN2230H948	0.022M 25V Z F TA26
		C910	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C911	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C912	OCE1066H638	10M SMS 25V M FMS TP
		C913	OCQ3321N409	0.0033U 100V J POLY TP
		C914	OCX1500K408	15P 50V J SL TA26
		C915	OCX2700K408	27P 50V J SL TA26
		C916	OCX3300K408	33P 50V J SL TA26
		C918	OCX3300K408	33P 50V J SL TA26
		C919	OCN1030F678	0.01M 16V M Y TA26
		C920	OCE2276F638	220U SMS 16V M FMS TP(5)
		C922	OCQ6831N409	0.068U 100V J POLY TP
		C923	OCE1056K638	1.0M SMS 50V M FMS TP(5)
		C924	OCN1010K518	100P 50V K B TA26
		C925	OCQ2721N409	0.0027M 100V J POLY TP
		C926	OCQ1021N409	0.001U 100V J POLY TP
		C927	OCN2230H948	0.022M 25V Z F TA26
		C928	OCE4766F638	47M SMS 16V M FMS TP5
		C929	OCN1030F678	0.01M 16V M Y TA26
		C930	OCN1030F678	0.01M 16V M Y TA26
		C931	OCE1066H638	10M SMS 25V M FMS TP
		C932	OCN1030F678	0.01M 16V M Y TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
DISPLAY TUBE				
		DG601	514-024A	11BT-89GK SEJIN
DELAY LINE				
		DL301	617-022B	ADL-FE 2245E PAL ASAHI GLASS
DIODE				
*		D001	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
*		D101	ODD402000AC	BRIDGE RBA-402 SANKEN
		D102	ODD402000AC	BRIDGE RBA-402 SANKEN
		D109	ODD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D110	ODD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D111	ODD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D113	ODD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D114	ODD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D201	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D202	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D207	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D208	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D209	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D210	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D211	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D212	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D213	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D401	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D402	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D403	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D407	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D501	ODD400309AB	IN4003A(1SR35-200A)5M/M TP RO
		D502	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D503	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D504	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D601	ODD131009AA	1SS131 DETECT,SW(26MM)TP ROHM
		D602	ODD131009AA	1SS131 DETECT,SW(26MM)TP RO

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		FL401	616-069A	LPF 12KHZ 253AGGS-1066
		Z701	616-622A	SAW TSF5321 SECAM S SANYO
		Z702	616-036B	TRAP TPS5.5MB MURA
		Z703	616-038D	CERAMIC SFT5.5MA MURATA
		Z704	616-039G	CERAMIC CDA6.5MEZ1
		Z705	616-321B	SFE6.5MC MURATA
		Z706	616-341A	CERAMIC TPS6.5MB
FUSE				
*		F001	616-087A	1.5MHZ HPF (DAISHIN)
*	OR	F101	585-011A	T 500MA 250V S504
*		F101	585-012A	T500MA,250V PAL (SOC)
*		F102	585-011H	T 2.5A, 250V S506
*		F103	585-011H	T 2.5A, 250V S506
IC				
		IC001	OIHI118019A	HA118019NT(PRE-AMP 4HD)
		IC101	OIMA780600A	AN7806 6V1AREG MATSUSHITA
		IC102	OIMA780600A	AN7806 6V1AREG MATSUSHITA
		IC201	OIHI497560A	HD49756NT(SERVO)
		IC202	OIRH728000B	BA728N(DUAL OP-AMP)SIP
		IC203	OIRH704800A	BA7048N(ENVELOPE-DETECT)
		IC301	669-073A	GSH-7505P(BU7505BK1)Y/C.GST
		IC302	OIRH702500A	BA7025L PAL/MESECAM SYNC DETE
		IC303	OIKK740100A	MSM7401RS 2H-DL PAL
	OR	IC304	OIGS381600A	GL3816
		IC304	OISA701600A	LA7016 ANALOG SW
		IC401	OISA729500A	LA7295 (1280 AUDIO)
		IC402	OISA701600A	LA7016 ANALOG SW
		IC501	OIMI509630J	MS0963-410FP(SYS.C40P)
	OR	IC502	OIGS744500A	GL7445 (MOTOR DRIV-1CH) GSS
		IC502	OISA164100A	LB1641(1-CH)MOTOR DRIV SANYO
		IC503	OIMT523000B	PST-523G(3.3V) LOW MITUSMI
	OR	IC601	OIMI381025Q	M38102M5-131SP(TIMER)C40P
		IC602	OICA240200A	CH24C02 EEP-ROM(2K CMOS)
		IC602	OIXI240200B	X24C02.8D EEP-ROM(2K CMOS)
	OR	IC603	OIMT523000B	PST-523G(3.3V) LOW MITUSMI
		IC701	OISA754500A	LA7545 (1280 T/IF)
		IC901	OIMI505560A	M50556-055SP(OSD 64CHAR)G41M
		IC902	OIJR222900A	NJM2229S SYNC SEPA (SIP PACK)
		IC903	OIJR224900A	NJM2249L S/W (8 PIN SIP)
LED				
		LD601	ODL162000AA	KLR162E (RD) KEC
COIL				
		L001	OLR1000K035	100M K 6X6 L5 TP
		L002	OLA0272K018	27M K 2.3X3.4 L5 TP
		L003	OLA0272K018	27M K 2.3X3.4 L5 TP
		L004	OLA0152K018	15M K 2.3X3.4 L5 TP
		L005	OLA1800K018	180M K 2.3X3.4 L5 TP
		L006	OLA0392K018	39M K 2.3X3.4 L5 TP
		L007	OLR1000K035	100M K 6X6 L5 TP
		L008	OLA0152K018	15M K 2.3X3.4 L5 TP
		L009	OLR1000K035	100M K 6X6 L5 TP
		L201	OLR1000K035	100M K 6X6 L5 TP
		L202	OLA0472K018	47M K 2.3X3.4 L5 TP
		L3A1	OLA0152K018	15M K 2.3X3.4 L5 TP
		L301	OLR1000K035	100M K 6X6 L5 TP
		L302	OLR1000K035	100M K 6X6 L5 TP

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		L303	OLA0682K018	68M K 2.3X3.4 L5 TP
		L304	OLA0562K018	56M K 2.3X3.4 L5 TP
		L305	OLR1000K035	100M K 6X6 L5 TP
		L306	OLA0331K018	3.3UH K 2.3X3.4 L5 TP
		L307	OLR1000K035	100M K 6X6 L5 TP
		L308	OLR1000K035	100M K 6X6 L5 TP
		L309	OLR1000K035	100M K 6X6 L5 TP
		L310	OLA0472K018	47M K 2.3X3.4 L5 TP
		L311	OLR1000K035	100M K 6X6 L5 TP
		L313	OLA0682K018	68M K 2.3X3.4 L5 TP
		L314	OLA0682K018	68M K 2.3X3.4 L5 TP
		L315	OLR1000K035	100M K 6X6 L5 TP
		L316	637-013B	PECK 6.80MH-J NYE
		L4F1	OLA0181K018	1.8M K 2.3X3.4 L5 TP
		L401	OLR1000K035	100M K 6X6 L5 TP
		L403	OLR1000K035	100M K 6X6 L5 TP
		L404	637-013C	PEAK 15.0MH-J NYE
		L407	OLR1000K035	100M K 6X6 L5 TP
		L4F2	OLA0181K018	1.8M K 2.3X3.4 L5 TP
		L4F3	OLA0181K018	1.8M K 2.3X3.4 L5 TP
		L501	OLR1000K035	100M K 6X6 L5 TP
		L601	OLR1000K530	100M K 6X6 F BULK
		L701	OLR1000K035	100M K 6X6 L5 TP
		L702	OLR0681K035	6.8M K 6X6 L5 TP
		L703	OLA0102K018	10M K 2.3X3.4 L5 TP
		L704	OLA0152K018	15M K 2.3X3.4 L5 TP
		L705	OLA0222K018	22M K 2.3X3.4 L5 TP
		L706	OLR1000K035	100M K 6X6 L5 TP
		L707	OLR1000K035	100M K 6X6 L5 TP
		L708	OLR1000K035	100M K 6X6 L5 TP
		L709	OLA0332K018	33M K 2.3X3.4 L5 TP
		L710	OLR1000K035	100M K 6X6 L5 TP
		L711	OLR1000K035	100M K 6X6 L5 TP
		L712	OLR1000K035	100M K 6X6 L5 TP
		L901	OLR1000K035	100M K 6X6 L5 TP
		L902	OLA0222K018	22M K 2.3X3.4 L5 TP
		L903	OLA0222K018	22M K 2.3X3.4 L5 TP
		L904	OLA0152K018	15M K 2.3X3.4 L5 TP
		L905	OLA0332K018	33M K 2.3X3.4 L5 TP
		L906	OLR1000K035	100M K 6X6 L5 TP
		L907	OLR1000K035	100M K 6X6 L5 TP
		T401	633-032C	BIAS-OSC(MISUMI) 70KHZ
		T701	633-021C	PIF(D/S)
		T702	633-042B	SIF DET COIL GHV-1245W
MODULATOR				
		MD701	592-907A	MDF33-UD3627 PAL-G/K MITSUMI
C.B.A(CIRCUIT BOARD ASSEMBLY)				
		PBA00	515-187A	PRE-AMP
		PBK00	515-421A	KEY-BOARD (R-C40P)
		PBM00	515-185W	MAIN (R-C40W)
		PBP00	515-184D	POWER (R-C40W,220V/50HZ)
		PBT00	515-188B	TIMER (R-C40W)
TRANSFORMER				
	OR	PT101	641-033B	225V/240V/50.60HZ
		PT101	641-333B	225V/240V/50.60HZ

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
TRANSISTOR				
		Q001	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q002	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q003	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q004	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q005	OTR126609AE	KTA1266-GR.TP(KTA1015).KEC
		Q006	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q007	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q008	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q101	OTR141400AA	KTD1414 POWER (220 PACK) KEC
		Q103	OTR120300AB	KN1203=KRC1203=KRC103M(DEGI)K
		Q104	OTR220900AA	DEGI KN2209 FORMING KEC
		Q105	OTR966000AA	KTA966A-Y=KTC1273-Y KE
		Q106	OTR220900AA	DEGI KN2209 FORMING KEC
		Q107	OTR120300AB	KN1203=KRC1203=KRC103M(DEGI)K
		Q109	OTR223600AA	KTC2236A-Y=KTC3205Y KEC
		Q110	OTR141400AA	KTD1414 POWER (220 PACK) KEC
		Q201	OTR220309AA	KN2203=KRA2203=KRA103M TP KEC
		Q202	OTR220309AA	KN2203=KRA2203=KRA103M TP KEC
		Q203	OTR220309AA	KN2203=KRA2203=KRA103M TP KEC
		Q205	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q206	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q207	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q301	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q302	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q303	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q304	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q306	OTR126609AE	KTA1266-GR.TP(KTA1015).KEC
		Q307	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q308	OTR126609AE	KTA1266-GR.TP(KTA1015).KEC
		Q309	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q310	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q311	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q312	OTR126609AE	KTA1266-GR.TP(KTA1015).KEC
		Q401	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q402	OTR126609AE	KTA1266-GR.TP(KTA1015).KEC
		Q403	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q405	OTR223609AB	KTC2236A-Y=KTC3205Y TP KEC
		Q501	OTR120409AA	KN1204=KRC1204=KRC104M TP KEC
		Q502	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q503	OTR120409AA	KN1204=KRC1204=KRC104M TP KEC
		Q504	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q505	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q506	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q507	OTR223609AB	KTC2236A-Y=KTC3205Y TP KEC
		Q701	OTR388009AB	KTC388A-Y=KTC3197Y TP KEC
		Q705	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q706	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q707	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q708	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q709	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q710	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q711	OTR126609AE	KTA1266-GR.TP(KTA1015).KEC
		Q712	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q902	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q903	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q904	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q905	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q906	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q907	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q908	OTR319809AA	KTC3198-TP-Y (KTC1815)KEC
		Q909	OTR220309AA	KN2203=KRA2203=KRA103M TP KEC

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		Q910	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q911	OTR120309AA	KN1203=KRC1203=KRC103M TP KEC
		Q912	OTR220309AA	KN2203=KRA2203=KRA103M TP KEC
REMOCON RECEIVER				
		RC601	668-226A	R/C RECEIVER(KTC.H=15) 34L
RESISTOR				
		R001	ORD1002F608	10K 1/6W 5 TA26
		R002	ORD1002F608	10K 1/6W 5 TA26
		R003	ORD1002F608	10K 1/6W 5 TA26
		R004	ORD1002F608	10K 1/6W 5 TA26
		R005	ORD1002F608	10K 1/6W 5 TA26
		R006	ORD1001F608	1.0K 1/6W 5 TA26
		R008	ORD5601F608	5.6K 1/6W 5 TA26
		R009	ORD2201F608	2.2K 1/6W 5 TA26
		R010	ORD3901F608	3.9K 1/6W 5 TA26
		R011	ORD8200F608	820 1/6W 5 TA26
		R012	ORD4700F608	470 1/6W 5 TA26
		R013	ORD5600F608	560 1/6W 5 TA26
		R014	ORD1201F608	1.2K 1/6W 5 TA26
		R015	ORD3903F608	390K 1/6W 5 TA26
		R016	ORD4703F608	470K 1/6W 5 TA26
		R017	ORD1202F608	12K 1/6W 5 TA26
		R018	ORD1002F608	10K 1/6W 5 TA26
		R019	ORD1002F608	10K 1/6W 5 TA26
		R020	ORD1201F608	1.2K 1/6W 5 TA26
		R021	ORD2201F608	2.2K 1/6W 5 TA26
		R022	ORD2201F608	2.2K 1/6W 5 TA26
		R023	ORD3900F608	390 1/6W 5 TA26
		R024	ORD8200F608	820 1/6W 5 TA26
		R025	ORD3900F608	390 1/6W 5 TA26
		R026	ORD1002F608	10K 1/6W 5 TA26
		R027	ORD1002F608	10K 1/6W 5 TA26
		R028	ORD1002F608	10K 1/6W 5 TA26
		R029	ORD1201F608	1.2K 1/6W 5 TA26
		R030	ORD1001F608	1.0K 1/6W 5 TA26
		R031	ORD0752F608	75 1/6W 5 TA26
		R032	ORD0752F608	75 1/6W 5 TA26
		R033	ORD1000F608	100 1/6W 5 TA26
		R034	ORD0822F608	82 1/6W 5 TA26
		R101	ORD8200F620	8

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		R214	ORD6802F608	68K 1/6W 5 TA26
		R215	ORD2702F608	27K 1/6W 5 TA26
		R216	ORD8203F608	820K 1/6W 5 TA26
		R217	ORD5603F608	560K 1/6W 5 TA26
		R218	ORD6803F608	680K 1/6W 5 TA26
		R219	ORD2702F608	27K 1/6W 5 TA26
		R220	ORD4702F608	47K 1/6W 5 TA26
		R221	ORD8201F608	8.2K 1/6W 5 TA26
		R222	ORD1003F608	100K 1/6W 5 TA26
		R223	ORD5602F608	56K 1/6W 5 TA26
		R224	ORD8202F608	82K 1/6W 5 TA26
		R226	ORD1503F608	150K 1/6W 5 TA26
		R227	ORD5601F608	5.6K 1/6W 5 TA26
		R228	ORD4701F608	4.7K 1/6W 5 TA26
		R229	ORD4700F608	470 1/6W 5 TA26
		R230	ORD4700F608	470 1/6W 5 TA26
		R231	ORD5601F608	5.6K 1/6W 5 TA26
		R232	ORD1001F608	1.0K 1/6W 5 TA26
		R233	ORD1202F608	12K 1/6W 5 TA26
		R234	ORD1004F608	1.0M 1/6W 5 TA26
		R235	ORD1203F608	120K 1/6W 5 TA26
		R236	ORD1803F608	180K 1/6W 5 TA26
		R238	ORD1001F608	1.0K 1/6W 5 TA26
		R239	ORD1501F608	1.5K 1/6W 5 TA26
		R240	ORD2201F608	2.2K 1/6W 5 TA26
		R241	ORD6801F608	6.8K 1/6W 5 TA26
		R242	ORD4701F608	4.7K 1/6W 5 TA26
		R243	ORD0101F608	1.0 1/6W 5 TA26
		R244	ORD0101F608	1.0 1/6W 5 TA26
		R245	ORD1801F608	1.8K 1/6W 5 TA26
		R246	ORD1003F608	100K 1/6W 5 TA26
		R247	ORD1002F608	10K 1/6W 5 TA26
		R248	ORD5601F608	5.6K 1/6W 5 TA26
		R249	ORD1001F608	1.0K 1/6W 5 TA26
		R250	ORD1501F608	1.5K 1/6W 5 TA26
		R251	ORD2201F608	2.2K 1/6W 5 TA26
		R252	ORD2702F608	27K 1/6W 5 TA26
		R253	ORD4701F608	4.7K 1/6W 5 TA26
		R254	ORD1002F608	10K 1/6W 5 TA26
		R301	ORD3301F608	3.3K 1/6W 5 TA26
		R302	ORD2701F608	2.7K 1/6W 5 TA26
		R303	ORD1002F608	10K 1/6W 5 TA26
		R304	ORD1002F608	10K 1/6W 5 TA26
		R305	ORD6800F608	680 1/6W 5 TA26
		R308	ORD1001F608	1.0K 1/6W 5 TA26
		R309	ORD1002F608	10K 1/6W 5 TA26
		R310	ORD1002F608	10K 1/6W 5 TA26
		R311	ORD3901F608	3.9K 1/6W 5 TA26
		R312	ORD4701F608	4.7K 1/6W 5 TA26
		R313	ORD5601F608	5.6K 1/6W 5 TA26
		R314	ORD1002F608	10K 1/6W 5 TA26
		R315	ORD8200F608	820 1/6W 5 TA26
		R316	ORD1001F608	1.0K 1/6W 5 TA26
		R317	ORD2700F608	270 1/6W 5 TA26
		R318	ORD2201F608	2.2K 1/6W 5 TA26
		R319	ORD3900F608	390 1/6W 5 TA26
		R320	ORD4701F608	4.7K 1/6W 5 TA26
		R321	ORD3301F608	3.3K 1/6W 5 TA26
		R323	ORD3300F608	330 1/6W 5 TA26
		R324	ORD0752F608	75 1/6W 5 TA26
		R325	ORD2700F608	270 1/6W 5 TA26
		R326	ORD3300F608	330 1/6W 5 TA26
		R327	ORD3900F608	390 1/6W 5 TA26
		R328	ORD4702F608	47K 1/6W 5 TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		R329	ORD1802F608	18K 1/6W 5 TA26
		R330	ORD1001F608	1.0K 1/6W 5 TA26
		R331	ORD1001F608	1.0K 1/6W 5 TA26
		R332	ORD1001F608	1.0K 1/6W 5 TA26
		R333	ORD1503F608	150K 1/6W 5 TA26
		R334	ORD0182F608	18 1/6W 5 TA26
		R335	ORD2201F608	2.2K 1/6W 5 TA26
		R336	ORD1001F608	1.0K 1/6W 5 TA26
		R337	ORD2202F608	22K 1/6W 5 TA26
		R338	ORD3900F608	390 1/6W 5 TA26
		R339	ORD0682F608	68 1/6W 5 TA26
		R340	ORD1201F608	1.2K 1/6W 5 TA26
		R342	ORD1001F608	1.0K 1/6W 5 TA26
		R343	ORD4700F608	470 1/6W 5 TA26
		R344	ORD2200F608	220 1/6W 5 TA26
		R345	ORD1001F608	1.0K 1/6W 5 TA26
		R346	ORD5601F608	5.6K 1/6W 5 TA26
		R347	ORD2201F608	2.2K 1/6W 5 TA26
		R4001	ORD0102F608	10 1/6W 5 TA26
		R4L1	ORD3900F608	390 1/6W 5 TA26
		R402	ORD3303F608	330K 1/6W 5 TA26
		R403	ORD1202F608	12K 1/6W 5 TA26
		R404	ORD3902F608	39K 1/6W 5 TA26
		R405	ORD4701F608	4.7K 1/6W 5 TA26
		R406	ORD5603F608	560K 1/6W 5 TA26
		R407	ORD2702F608	27K 1/6W 5 TA26
		R408	ORD5602F608	56K 1/6W 5 TA26
		R409	ORD1002F608	10K 1/6W 5 TA26
		R410	ORD2702F608	27K 1/6W 5 TA26
		R411	ORD5600F608	560 1/6W 5 TA26
		R413	ORD2201F608	2.2K 1/6W 5 TA26
		R414	ORD1502F608	15K 1/6W 5 TA26
		R415	ORD2201F608	2.2K 1/6W 5 TA26
		R416	ORD5601F608	5.6K 1/6W 5 TA26
		R417	ORD4702F608	47K 1/6W 5 TA26
		R418	ORD4702F608	47K 1/6W 5 TA26
		R419	ORD6800F608	680 1/6W 5 TA26
		R420	ORD1801F608	1.8K 1/6W 5 TA26
		R421	ORD1200F608	120 1/6W 5 TA26
		R422	ORD8200F608	820 1/6W 5 TA26
		R423	ORD2200F608	220 1/6W 5 TA26
		R424	ORD2201F608	2.2K 1/6W 5 TA26
		R425	ORD2201F608	2.2K 1/6W 5 TA26
		R426	ORD0472F608	47 1/6W 5 TA26
		R427	ORD0102F608	10 1/6W 5 TA26
		R428	ORD0102F608	10 1/6W 5 TA26
		R429	ORD2702F608	27K 1/6W 5 TA26
		R433	ORD1500F608	150 1/6W 5 TA26
		R501	ORD4701F608	4.7K 1/6W 5 TA26
		R502	ORD1802F608	18K 1/6W 5 TA26
		R503	ORD1002F608	10K 1/6W 5 TA26
		R504	ORD1002F608	10K 1/6W 5 TA26
		R505	ORD1003F608	100K 1/6W 5 TA26
		R506	ORD1003F608	100K 1/6W 5 TA26
		R507	ORD1003F608	100K 1/6W 5 TA26
		R508	ORD4701F608	4.7K 1/6W 5 TA26
		R509	ORD4701F608	4.7K 1/6W 5 TA26
		R510	ORD1003F608	100K 1/6W 5 TA26
		R511	ORD1003F608	100K 1/6W 5 TA26
		R512	ORD4701F608	4.7K 1/6W 5 TA26
		R513	ORD1802F608	18K 1/6W 5 TA26
		R514	ORD4701F608	4.7K 1/6W 5 TA26
		R515	ORD1004F608	1.0M 1/6W 5 TA26
		R516	ORD4701F608	4.7K 1/6W 5 TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		R517	ORD4701F608	4.7K 1/6W 5 TA26
		R518	ORD4701F608	4.7K 1/6W 5 TA26
		R519	ORD4701F608	4.7K 1/6W 5 TA26
		R520	ORD4701F608	4.7K 1/6W 5 TA26
		R521	ORD4701F608	4.7K 1/6W 5 TA26
		R522	ORD4701F608	4.7K 1/6W 5 TA26
		R523	ORD4701F608	4.7K 1/6W 5 TA26
		R524	ORD4701F608	4.7K 1/6W 5 TA26
		R525	ORD4701F608	4.7K 1/6W 5 TA26
		R526	ORD4701F608	4.7K 1/6W 5 TA26
		R527	ORD4701F608	4.7K 1/6W 5 TA26
		R528	ORD4701F608	4.7K 1/6W 5 TA26
		R529	ORD4701F608	4.7K 1/6W 5 TA26
		R530	ORD4701F608	4.7K 1/6W 5 TA26
		R531	ORD4701F608	4.7K 1/6W 5 TA26
		R532	ORD4701F608	4.7K 1/6W 5 TA26
		R533	ORD4701F608	4.7K 1/6W 5 TA26
		R534	ORD4701F608	4.7K 1/6W 5 TA26
		R535	ORD4700F608	470 1/6W 5 TA26
		R536	ORD4701F608	4.7K 1/6W 5 TA26
		R537	ORD4701F608	4.7K 1/6W 5 TA26
		R538	ORD4701F608	4.7K 1/6W 5 TA26
		R539	ORD2201F608	2.2K 1/6W 5 TA26
		R540	ORD4701F608	4.7K 1/6W 5 TA26
		R541	ORD4701F608	4.7K 1/6W 5 TA26
		R542	ORD4701F608	4.7K 1/6W 5 TA26
		R601	ORD1004F608	1.0M 1/6W 5 TA26
		R602	ORD1002F608	10K 1/6W 5 TA26
		R603	ORD4704F608	4.7M 1/6W 5 TA26
		R604	ORD6802F608	68K 1/6W 5 TA26
		R605	ORD6802F608	68K 1/6W 5 TA26
		R606	ORD6802F608	68K 1/6W 5 TA26
		R607	ORD6802F608	68K 1/6W 5 TA26
		R608	ORD4700F608	470 1/6W 5 TA26
		R609	ORD1000F608	100 1/6W 5 TA26
		R610	ORD1002F608	10K 1/6W 5 TA26
		R612	ORD1002F608	10K 1/6W 5 TA26
		R613	ORD1002F608	10K 1/6W 5 TA26
		R616	ORD1002F608	10K 1/6W 5 TA26
		R618	ORD1002F608	10K 1/6W 5 TA26
		R619	ORD1002F608	10K 1/6W 5 TA26
		R620	ORD1001F608	1.0K 1/6W 5 TA26
		R621	ORD1001F608	1.0K 1/6W 5 TA26
		R622	ORD1001F608	1.0K 1/6W 5 TA26
		R701	ORD0822F608	82 1/6W 5 TA26
		R702	ORD2201F608	2.2K 1/6W 5 TA26
		R703	ORD4701F608	4.7K 1/6W 5 TA26
		R704	ORD1201F608	1.2K 1/6W 5 TA26
		R705	ORD5600F608	560 1/6W 5 TA26
		R706	ORD0682F608	68 1/6W 5 TA26
		R707	ORD3301F608	3.3K 1/6W 5 TA26
		R708	ORD2700F608	270 1/6W 5 TA26
		R709	ORD3300F608	330 1/6W 5 TA26
		R710	ORD2201F608	2.2K 1/6W 5 TA26
		R711	ORD4701F608	4.7K 1/6W 5 TA26
		R712	ORD1502F608	15K 1/6W 5 TA26
		R713	ORD6801F608	6.8K 1/6W 5 TA26
		R714	ORD5601F608	5.6K 1/6W 5 TA26
		R715	ORD8200F608	820 1/6W 5 TA26
		R716	ORD3300F608	330 1/6W 5 TA26
		R717	ORD2200F608	220 1/6W 5 TA26
		R718	ORD1801F608	1.8K 1/6W 5 TA26
		R719	ORD2701F608	2.7K 1/6W 5 TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		R720	ORD1500F608	150 1/6W 5 TA26
		R721	ORD2200F608	220 1/6W 5 TA26
		R722	ORD2200F608	220 1/6W 5 TA26
		R723	ORD5601F608	5.6K 1/6W 5 TA26
		R724	ORD1001F608	1.0K 1/6W 5 TA26
		R725	ORD1000F608	100 1/6W 5 TA26
		R726	ORD2202F608	22K 1/6W 5 TA26
		R727	ORD1203F608	120K 1/6W 5 TA26
		R728	ORD5601F608	5.6K 1/6W 5 TA26
		R729	ORD1203F608	120K 1/6W 5 TA26
		R730	ORD5601F608	5.6K 1/6W 5 TA26
		R734	ORD5601F608	5.6K 1/6W 5 TA26
		R735	ORD5601F608	5.6K 1/6W 5 TA26
		R736	ORD5601F608	5.6K 1/6W 5 TA26
		R751	ORD5601F608	5.6K 1/6W 5 TA26
		R901	ORD3301F608	3.3K 1/6W 5 TA26
		R902	ORD3301F608	3.3K 1/6W 5 TA26
		R903	ORD5601F608	5.6K 1/6W 5 TA26
		R904	ORD1001F608	1.0K 1/6W 5 TA26
		R908	ORD1002F608	10K 1/6W 5 TA26
		R909	ORD3301F608	3.3K 1/6W 5 TA26
		R910	ORD1802F608	18K 1/6W 5 TA26
		R911	ORD1001F608	1.0K 1/6W 5 TA26
		R912	ORD1001F608	1.0K 1/6W 5 TA26
		R913	ORD5601F608	5.6K 1/6W 5 TA26
		R914	ORD3302F608	33K 1/6W 5 TA26
		R915	ORD1001F608	1.0K 1/6W 5 TA26
		R916	ORD1202F608	12K 1/6W 5 TA26
		R917	ORD3900F608	390 1/6W 5 TA26
		R918	ORD3302F608	33K 1/6W 5 TA26
		R919	ORD5603F608	560K 1/6W 5 TA26
		R920	ORD1501F608	1.5K 1/6W 5 TA26
		R921	ORD5602F608	56K 1/6W 5 TA26
		R922	ORD1002F608	10K 1/6W 5 TA26

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
		SW613	556-148A	TACT KPT-1105BP (H=9.5)
		SW614	556-148A	TACT KPT-1105BP (H=9.5)
		SW615	556-148A	TACT KPT-1105BP (H=9.5)
		SW616	556-148A	TACT KPT-1105BP (H=9.5)
		SW617	556-148A	TACT KPT-1105BP (H=9.5)
		SW618	556-148A	TACT KPT-1105BP (H=9.5)
		SW619	556-148A	TACT KPT-1105BP (H=9.5)
		SW622	556-148A	TACT KPT-1105BP (H=9.5)
		SW623	556-148A	TACT KPT-1105BP (H=9.5)
		SW624	556-148A	TACT KPT-1105BP (H=9.5)
		SW625	556-148A	TACT KPT-1105BP (H=9.5)
		SW626	556-148A	TACT KPT-1105BP (H=9.5)
		SW630	556-023K	SLIDE SSJ-822 (L=12)
		SW631	556-023K	SLIDE SSJ-822 (L=12)
TUNER				
		TU701	521-402A	ENV-5786263 FS/PLL HYPER MATS
VARIABLE RESISTOR				
		VR201	613-028J	EVN-D4AA001B15 (100K)
		VR301	613-0247	RH0615C-102B 0.1W GAE
OR		VR301	613-0287	EVN-D4AA001B13 (1K)
		VR302	613-024D	RH0615C-103B 0.1W GAE
OR		VR302	613-028D	EVN-D4AA001B14 (10K)
		VR303	613-0247	RH0615C-102B 0.1W GAE
OR		VR303	613-0287	EVN-D4AA001B13 (1K)
		VR401	613-028F	EVN-D4AA001BE4 (22K)
		VR402	613-028L	EVN-D4AA001BE5 (220K)
		VR601	611-012G	VR. ROTARY RK09K113-20KB(FLAT
		VR701	613-028G	EVN-D4AA001BY4 (33K)
		VR901	613-028G	EVN-D4AA001BY4 (33K)

S	AL	LOCA. NO	PART NO(GS)	SPECIFICATION
CRYSTAL				
		X301	616-323A	SFE4.25MBF (MURATA)
		X501	618-013B	CST6.0MGW-TF01S TAPING MURATA
		X601	529-018A	CERAMIC RESONATOR-4.0MHZ C=30
		X602	529-001A	32.768KHZ
		X901	529-020K	17.734476MHZ 30PPM NO-TU L=4.
		X902	529-019A	CSB500F-9 MURATA
ZENER DIODE				
		ZD101	0DZ130000BA	UZ-13BH UNIZON
		ZD103	0DZ160009AB	UZ-16 BL 0.5W TP
		ZD104	0DZ130009CC	UZ-13BL 0.5W TP
		ZD106	0DZ330009AB	MTZ-33C TP
		ZD107	0DZ330009AB	MTZ-33C TP
		ZD108	0DZ560009CA	MTZ5.6B TP ROHM-K
		ZD501	0DZ820009BB	UZ8.2BSC 5M/M TP UNIZON
		ZD502	0DZ100009AA	MTZ10B MINI TP ROHM-K
		ZD503	0DZ100009AA	MTZ10B MINI TP ROHM-K